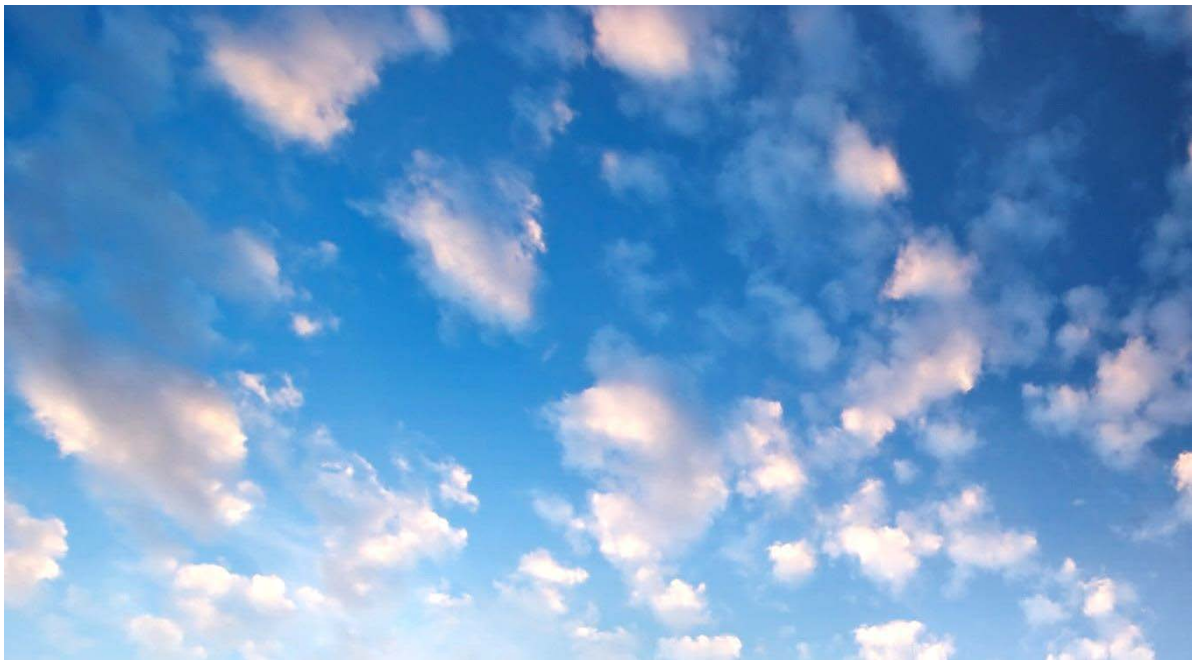

Air Quality and Greenhouse Gas Emission Study

West Grove 9.5 Apartments Project

prepared for

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April 2019

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1 Project Description

1.1 Introduction

This study analyzes the potential air quality and greenhouse gas (GHG) impacts of the proposed residential project, West Grove 9.5 Apartments, located along Lugonia Avenue between Nevada Street and California Street in the County of San Bernardino. Rincon Consultants, Inc. prepared this study under contract to West Grove 9.5, LLC, in support of the environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA) by the County of San Bernardino. This analysis considers both temporary impacts that would result from project construction and long-term impacts associated with operation of the project.

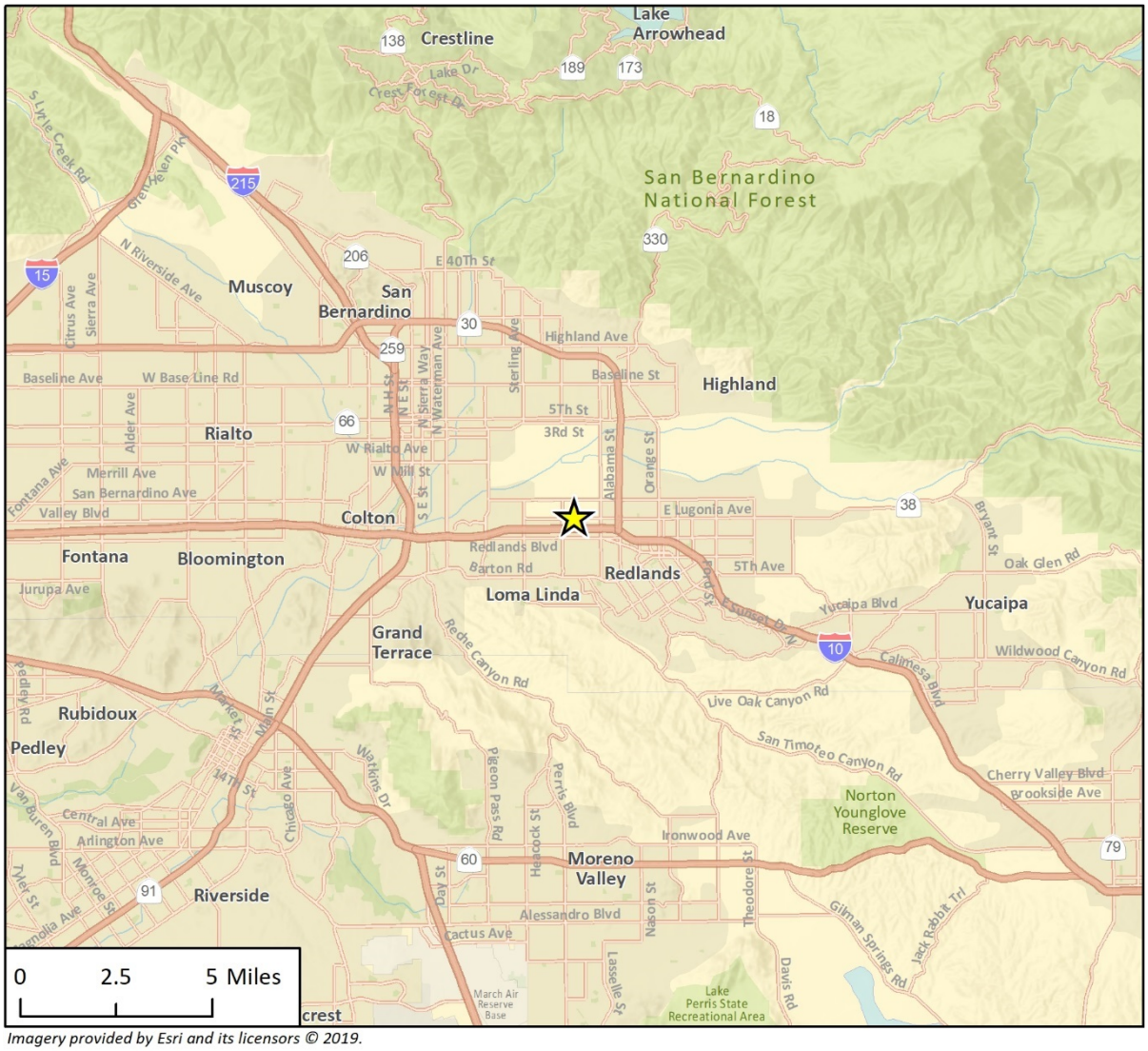
1.2 Project Summary

The proposed project would involve the construction of a 282-unit, multi-family residential development on an approximately 9.5-acre project site (Assessor Parcel Number 0292-053-08-0000). The project site is currently undeveloped. Offices are located to the south across West Lugonia Avenue and existing warehouses/distribution centers border the project site to the west and north. Residences associated with an approved, 360-unit apartment complex are under construction immediately east of the project site. The project site is zoned East Valley/Special Development (EV/SD) under the County of San Bernardino Development Code (County of San Bernardino 2016).

Five three-story buildings with a gross building area of 350,795 square feet (sf), including common spaces, would house 277 residential units. Four additional units would be constructed in two-story buildings above proposed garages, providing an additional 9,584 sf of residential building area. The project would also include construction of an approximately 3,900 sf outdoor pool, as well as a 1,000 sf pool house and a 7,584 sf clubhouse containing a fitness center, leasing offices, a business center, pool bathrooms, a pool equipment room, and a permanent non-leasable model unit. The four largest residential buildings would be constructed around landscaped courtyards, with a total of 98,846 sf of landscaping provided on the project site.

Access to the project site would be provided via a primary public access drive along Lugonia Avenue at the eastern property line. An additional tenant-only exit and emergency access drive would be provided along Lugonia Drive at the western property line. A total of 474 parking spaces would be provided, including 195 garage spaces, 142 carport spaces, 93 open tenant spaces, 24 spaces that are complaint with the American's with Disabilities Act (ADA) requirements, and 20 lifter spaces. Figure 1 shows the project's regional location, and Figure 2 shows the project site location. Appendix A contains the project site plan.

Figure 1 Regional Location



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Project Location

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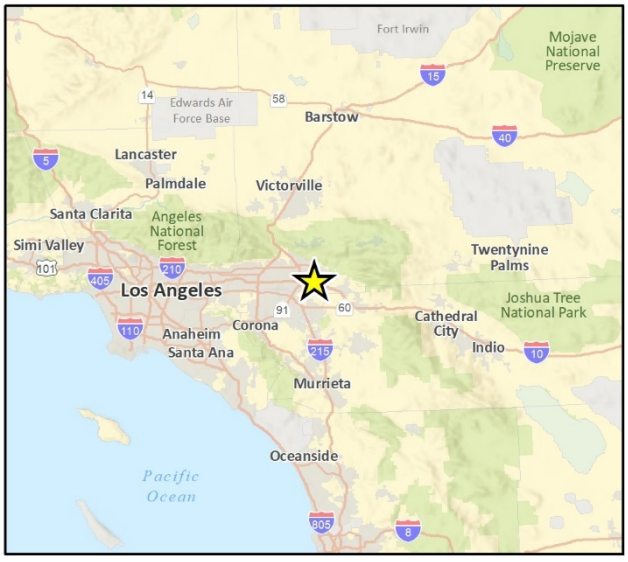

Figure 2 Project Location

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Fig 2 Project Location

2 Air Quality

2.1 Background

2.1.1 Local Climate and Meteorology

The project site is in the South Coast Air Basin (SCAB), bound by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The regional climate in the SCAB is considered semi-arid, characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality in the SCAB is primarily influenced by meteorology and a wide range of emissions sources, such as dense population centers, substantial vehicular traffic, and industry.

Air pollutant emissions in the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment such as when high winds suspend fine dust particles.

2.1.2 Air Quality Regulation

The federal and state governments have established ambient air quality standards for the protection of public health. The United State Environmental Protection Agency (USEPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) is the state equivalent in the California EPA. County-level Air Pollution Control Districts (APCDs) provide local management of air quality. CARB has established air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 14 air basins statewide.

The USEPA has set primary national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, the state of California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards. Table 1 lists the current federal and state standards for regulated pollutants.

The South Coast Air Quality Management District (SCAQMD) is the designated air quality control agency in the SCAB. The SCAB is designated nonattainment for the federal and state one-hour and eight-hour ozone standards, the state PM_{10} standards, the federal 24-hour $PM_{2.5}$ standard, and the state and federal annual $PM_{2.5}$ standard. The SCAB is in attainment of all other federal and state standards. Characteristics of ozone, CO, NO_2, and suspended particulates are described below.

Table 1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standards
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	0.030 ppm	–
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	–	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
$PM_{2.5}$	Annual	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	–
Lead	30-Day Average	–	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	–

ppm = parts per million;
µg/m^3 = micrograms per cubic meter
Source: CARB 2016

Ozone

Ozone (O_3) is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG).[1] Nitrogen oxides are formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because O_3 requires sunlight to form, it mostly occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health

[1] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). SCAQMD uses the term VOC to denote organic precursors.

effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

Carbon monoxide is a local pollutant that is found in high concentrations only near fuel combustion equipment and other sources of CO. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Nitrogen Dioxide

Nitrogen dioxide is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of ozone/smog and acid rain.

Suspended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (which measures no more than 10 microns in diameter) and $PM_{2.5}$ (a fine particulate measuring no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the small particulates (PM_{10} and $PM_{2.5}$) can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer, $PM_{2.5}$ particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

2.1.3 Current Air Quality

The SCAQMD operates a network of air quality monitoring stations throughout the SCAB. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The monitoring station located closest to the project site is the San Bernardino-4th Street station, located at 24302 4th Street, approximately 3.8 miles southeast of the project site. Table 2 indicates the number of days that each of the standards has been exceeded at the station. As shown in the table, the 8-hour

ozone, worst hour, PM_{10}, and $PM_{2.5}$ standards were exceeded each of the last three years where data is available. However, the NO_2 standard was not exceeded at this station between 2015 and 2017. No other pollutant data is monitored at this station.

Table 2 Ambient Air Quality at the Monitoring Station

Pollutant	2015	2016	2017
8 Hour Ozone (ppm), 8-Hr Average	0.117	0.118	0.136
Number of Days of State exceedances (>0.070 ppm)	78	106	112
Number of days of Federal exceedances (>0.070 ppm)	78	106	112
Ozone (ppm), Worst Hour	0.134	0.158	0.158
Number of days of State exceedances (>0.09 ppm)	52	70	81
Nitrogen Dioxide (ppm) - Worst Hour[1]	0.071	0.060	0.066
Number of days of State exceedances (>0.18 ppm)	0	0	0
Number of days of Federal exceedances (>0.100 ppm)	0	0	0
Particulate Matter 10 microns, μg/m^3, Worst 24 Hours	187.0	277.0	157.8
Number of days measured above State standard (>50 μg/m^3)	3	7	14
Number of days measured above Federal standard (>150 μg/m^3)	1	1	1
Particulate Matter <2.5 microns, μg/m^3, Worst 24 Hours	53.5	53.5	38.2
Number of days measured above Federal standard (>35 μg/m^3)	2	1	1

Emissions data from the San Bernardino 4th Street station.

Source: CARB 2018a

Note: As of April 9, 2019, 2018 data is not yet available.

2.1.4 Air Quality Management Plan

Under state law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the District is in nonattainment. Every three years, the SCAQMD prepares a new Air Quality Management Plan (AQMP), which updates the previous plan and has a 20-year horizon. The SCAQMD's latest AQMP, the 2016 AQMP, was adopted on March 3, 2017. The 2016 AQMP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 ppm finalized in 2015 (SCAQMD 2017). The 2016 AQMP incorporates the latest Southern California Association of Government's (SCAG) forecasts for population, housing, and employment growth for managing Basin air quality.

2.1.5 Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. They are designed to

protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore, schools, hospitals, and residences. Sensitive receptors likely to be affected by air quality impacts associated with construction of the proposed project include the adjacent residences, which are currently approved for construction, as well as existing multi-family residences, approximately 1,300 feet to the east. Additionally, the Splash Kingdom Waterpark and Splash Kingdom Trampoline Park are located approximately 0.3 miles southwest of the project site.

2.2 Impact Analysis

2.2.1 Methodology and Significance Thresholds

Project construction would generate diesel emissions and dust. Construction of the project would involve site preparation, grading, excavation, construction, architectural coating, and paving activities. Construction equipment that would generate criteria air pollutants includes excavators, graders, dump trucks, and loaders. Some of this equipment would be used during grading activities, as well as when structures are constructed. It is assumed that all construction equipment used would be diesel-powered. The project's construction emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 using model defaults for the type and number of pieces of equipment that would be used onsite during each of the construction phases. Additionally, it was assumed that construction of the project would require the export of approximately 54,600 cubic yards (CY) of material based on applicant provided information. Construction was assumed to start in December 2019. CalEEMod default construction phase lengths were used for the site preparation and paving phases; however, the grading, building construction, and architectural coating phases were extended from the default time frame to reflect a more accurate construction schedule. The grading phase was extended to be triple the default phase length (revised from 20 days to 60 days) to provide a more accurate estimate of material export. The building construction phase was extended as well from 230 days to 300 days and the architectural coating phase was extended to overlap with half of building construction because individual buildings would be painted as construction is completed, representing more realistic construction practices. CalEEMod assumptions and results are contained in Appendix B. It was also assumed that the applicant would utilize Tier 3 construction equipment per the requirements of SCAQMD Rule 401 and CARB's In-use Off-road Diesel-Fueled Fleets Regulation.

Operational emissions associated with the proposed project were also estimated using CalEEMod. Operational emissions include mobile source emissions, energy emissions, and area source emissions. Based on the requirements of the 2019 Title 24, Part 6 standards, all new residential uses under three stories must install solar panels. Because the project would include three stories and construction would begin in 2019, the 2019 Title 24 code requirements would be implemented. The lighting energy intensity factor was also reduced by 75 percent to account for the requirements of 2016 Title 24. Additionally, indoor water use was reduced by 20 percent per the requirements of CALGreen (Part 11 of Title 24). Proposed project traffic generation rates from the Traffic Impact Analysis prepared by Ganddini Group, Inc. (2019) were used in CalEEMod to estimate mobile emissions. Emissions attributed to energy use include natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, consumer products and architectural coating.

According to Appendix G of the *State CEQA Guidelines*, air quality impacts related to the project would be significant if the project would:

1) Conflict with or obstruct implementation of the applicable air quality plan
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard
3) Expose sensitive receptors to substantial pollutant concentrations
4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Regional Thresholds

The SCAQMD has developed specific quantitative thresholds that apply to projects within the SCAB. These thresholds are designed to achieve attainment of national and state ambient air quality standards at a regional level. Thus, individual projects with emissions below threshold levels would not contribute significantly to cumulative air quality impacts in the air district. The SCAQMD recommends the following quantitative regional significance thresholds for temporary construction activities and long-term project operation within the SCAB (SCAQMD 2015):

Construction Thresholds	Operational Thresholds
75 pounds per day of ROG	55 pounds per day of ROG
100 pounds per day of NO_X	55 pounds per day of NO_X
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of PM_{10}	150 pounds per day of SO_X
55 pounds per day of $PM_{2.5}$	150 pounds per day of PM_{10}
	55 pounds per day of $PM_{2.5}$

Localized Significance Thresholds

In addition to regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LST) in response to concerns about exposure to criteria pollutants in local communities (SCAQMD 2008). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, and distance to the sensitive receptor. However, LSTs only apply to emissions in a fixed stationary location, including idling emissions during both project construction and operation (SCAQMD 2008). LSTs are not applicable to mobile sources such as cars on a roadway (SCAQMD 2008). LSTs have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. As such, LSTs for operational emissions do not apply to onsite development, as the majority of emissions would be generated by cars on the roadways.

LSTs have been developed for emissions in construction areas up to five acres in size. The use of LSTs is voluntary, to be implemented at the discretion of local agencies (SCAQMD 2008). The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The project involves an approximately 9.5-acre disturbance area. It is unlikely that more than five acres would be under active construction at one time; therefore, this analysis utilizes the five-acre LSTs. The project site is located in Source Receptor Area 35 (SRA-35, East San Bernardino Valley). As described

under subsection 2.1.5, *Sensitive Receptors*, the nearest sensitive receptors evaluated in this study are residences, which are currently approved for construction to the east of the project site. LSTs are provided for receptors at a distances ranging from 82 to 1,640 feet from the project site boundary. According to the SCAQMD's *Final LST Methodology*, projects with boundaries located closer than 82 feet to the nearest receptor should use the LSTs for receptors located at 82 feet (2008). For the purpose of this analysis, project construction emissions are compared to construction LSTs shown in Table 3.

Table 3 SCAQMD LSTs for Construction (SRA-35)

Pollutant	Allowable Emissions from a 5-acre Site in SRA-35 for a Receptor 82 Feet Away
Gradual conversion of NO_X to NO_2	270
CO	2,075
PM_{10}	14
$PM_{2.5}$	9

Source: SCAQMD 2009

Regulatory Requirements

The project would comply with all applicable regulatory standards. In particular, the project would comply with the 2016 California Green Buildings Standards Code (CALGreen) (California Code of Regulations [CCR], Title 24, Part 11), in addition to SCAQMD Rules 403 and 445, as well as all other applicable provisions of the SCAQMD. CALGreen applies to all new constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. The code includes mandatory measures for residential and nonresidential uses and more stringent voluntary measures (Tiers I and II). Compliance with Rules 403 and 445 were included as mitigation in CalEEMod, as discussed below.

For the purposes of construction emissions modeling, it was assumed that the project would comply with the SCAQMD Rule 403, which identifies measures to reduce fugitive dust and is required to be implemented at all construction sites located in the SCAB. Therefore, the following conditions, which would be required to reduce fugitive dust in compliance with SCAQMD Rule 403, were included in CalEEMod for the site preparation and grading phases of construction.

1. **Minimization of Disturbance.** Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.
2. **Soil Treatment.** Construction contractors should treat all graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved onsite roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and at least twice daily, preferably in the late morning and after work is done for the day.
3. **Soil Stabilization.** Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials, shall be

applied to portions of the construction site that are inactive for over four days. In addition, a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide, shall be utilized to remove bulk material from tires and vehicle undercarriages before vehicles exit the site. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.

4. **No Grading During High Winds.** Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).
5. **Street Sweeping.** Construction contractors should sweep all onsite driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

Additionally, the model reflected the requirements of SCAQMD Rule 445, which restricts wood burning devices in all new developments within the basin.

2.2.2 Construction Impacts

Table 4 summarizes maximum daily emissions of pollutants associated with construction of the proposed project during each year of construction. Maximum daily estimates account for compliance with the above described requirements, but do not include any additional mitigation. Emissions of CO, PM_{10}, $PM_{2.5}$, NO_X, and ROG would not exceed SCAQMD regional or LSTs, assuming adherence to the conditions listed above required by SCAQMD Rule 403 and 1113.

Table 4 Estimated Construction Maximum Daily (lbs/day) without Mitigation

	Maximum Emissions[1]				
Construction Phase	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2019 Maximum lbs/day	1.8	49.2	26.9	49.5	13.7
2020 Maximum lbs/day	18.5	47.0	35.7	5.9	3.0
2021 Maximum lbs/day	18.3	22.8	34.4	5.4	2.2
Maximum lbs/day	18.5	49.2	35.7	49.5	13.7
SCAQMD Thresholds	75	100	550	150	55
Threshold Exceeded?	No	No	No	No	No
Maximum on-site lbs/day	15.8	19.1	23.0	9.5	5.5
Localized Significance Thresholds[2] (LSTs) (onsite only)	N/A	270	2,075	14	9
Threshold Exceeded?	N/A	No	No	No	No

Notes: All calculations were made using CalEEMod. See Appendix B for calculations. Grading, Paving, Building Construction, and Architectural Coating totals include worker trips, construction vehicle emissions and fugitive dust. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that will be included in the project.

[1] Grading phases incorporate anticipated emissions reductions from the conditions listed above, which are required by SCAQMD Rule 403 to reduce fugitive dust.

[2] LSTs are for a 5-acre project in SRA-35 within a distance of 82 feet from the site boundary (Table 3).

2.2.3 Long-Term Regional Impacts

AQMP Consistency

A project may be inconsistent with the SCAQMD's AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. The 2016 AQMP relies on local city general plans' and SCAG's Regional Transportation Plan (RTP) forecasts of population, housing, and employment growth for managing Basin air quality. In the 2016 RTP/SCS, SCAG estimates that the population of unincorporated San Bernardino County will increase to 344,100 by 2040 (SCAG 2015).

The development of 282 residential units on the project site may cause a direct increase in the County's population. Based on Department of Finance (DOF) 2018 estimates for the average household size in unincorporated San Bernardino County (3.11 persons per household), the project would accommodate approximately 877 new residents (i.e., 282 units x 3.11 persons/unit). In 2018, the population of the unincorporated area was approximately 311,659 persons (DOF 2018). Thus, the project would increase the population of the unincorporated area by approximately 0.3 percent to 312,536 people. SCAG projects that the unincorporated area in San Bernardino County would have approximately 344,100 residents in 2040 (SCAG 2016). The project would not cause the population of unincorporated San Bernardino County to exceed SCAG population forecasts. Therefore, the project would not conflict with the population forecasts on which the AQMP is based.

SCAG forecasts 854,300 households in San Bernardino County in 2040, which includes the incorporated and unincorporated areas. In 2018, the number of housing units in the County was approximately 719,911 (DOF 2018). Thus, the increase in housing from the proposed project would total approximately 0.2 percent of the projected increase in housing units in the County through 2040. The project would not cause housing in San Bernardino County to exceed SCAG's housing forecasts, nor would the project substantially increase existing housing. In addition, as a residential development, the project would not generate a substantial number of jobs and would not cause job projections in unincorporated San Bernardino County to exceed SCAG forecasts. Therefore, the project would not conflict with the AQMP.

Odors

The 1993 SCAQMD CEQA Air Quality Handbook identifies land uses associated with odor complaints. Because residences are not identified as land uses associated with odor complaints by SCAQMD, the project would not generate objectionable odors affecting a substantial number of people.

Operational Air Pollutant Emissions

Table 5 summarizes the project's operational emissions. The majority of project-related operational emissions would be due to vehicle trips to and from the site. Project-generated emissions would not exceed SCAQMD recommended thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Table 5 Project Daily Operational Emissions

	Estimated Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area	9.2	4.2	25.0	<0.1	0.5	0.5
Energy	0.1	1.1	0.4	<0.1	0.1	0.1
Mobile	2.3	11.6	27.4	0.1	8.8	2.4
Total	11.6	16.9	52.9	0.1	9.3	2.9
SCAQMD Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

See Appendix B for CalEEMod results. Note: Totals may not sum exactly due to rounding.

Toxic Air Contaminants (TACs)

In *California Building Industry Association v Bay Area Air Quality Management District,* the California Supreme Court held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project (S213478, December 17, 2015). An exception to this general rule is a project that may exacerbate a condition in the existing environment. For such a situation, the lead agency is required to analyze the impact of that exacerbated condition on future residents and users of a project as well as other impacted individuals or resources. For example, a development project could exacerbate hazards relating to wildfire by providing additional fuel and ignition sources, resulting in potential impacts to future residents of the project, existing residents, or resources. Thus, the significance determination with

respect to toxic air contaminants focuses on whether the project would exacerbate environmental conditions in a manner that would increase the potential to expose people or resources to environmental impacts. Because the project is a residential development, project operation would not generate toxic air contaminants, nor would the project substantially increase diesel particulates in the area because it would not attract substantial diesel traffic to the project site, like an industrial warehouse or rest area would. Furthermore, as indicated in Table 4, Estimated Construction Maximum Daily (lbs/day) without Mitigation, emissions of CO, PM_{10}, $PM_{2.5}$, NO_X, and ROG during project construction would not exceed SCAQMD's regional thresholds or LSTs, which are designed to be protective of public health; therefore, the project would not exacerbate environmental conditions in a manner that would increase the potential to expose sensitive receptors to environmental impacts.

Potential exposure of site users to environmental hazards from toxic air contaminants is discussed in this analysis for informational purposes only. CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005) recommends against siting sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. It also recommends against siting receptors within 1,000 feet of distribution centers that accommodate more than 100 diesel trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week. The primary concern with respect to heavy-traffic roadway and warehouse adjacency is the long-term effect of TACs, such as diesel exhaust particulates, on sensitive receptors.

The project site is located approximately 1,000 feet north of I-10 and, therefore, outside of CARB's recommended minimum siting distance of 500 feet. The only roadway within 500 feet of the project site is Lugonia Avenue. As documented in the Traffic Impact Analysis prepared for the project by Gandinni Group, Inc. (2019), average daily vehicle volumes on Lugonia Avenue between California Street and Nevada Street are projected to be approximately 7,800 average daily trips (ADT) under existing plus project conditions and up to 11,600 ADT under Year 2040 plus project conditions (Ganddini Group, Inc. 2019; Figures 30 and 48). These traffic levels do not meet or exceed the CARB criteria of 100,000 vehicles per day for exposure to diesel particulate matter generated by traffic on adjacent roadways. Therefore, the project would be consistent with CARB's recommended screening threshold for siting of sensitive receptors near roadways.

The project would place residences within 1,000 feet of seven warehouses. As shown in Table 6, two of these warehouses accommodate more than 100 truck trips per day and would exceed CARB's recommended screening threshold. All of the facilities within 1,000 feet of the project site are non-refrigerated based on tenant and property information that indicates they are used for manufacturing of HVAC, auto parts, packaging supplies, and other non-refrigerated uses. Because the facilities are not refrigerated, it is assumed that no trucks with TRUs operate at any of the facilities.

Table 6 Warehouse Generated Trips in the Project Site Vicinity

No.	Warehouse Name (if known)	Size (sf)	Location	Distance[1] (feet)	Total Diesel Trucks[2]
1	California Street Highcube Distribution	771,840[3]	NEC California Street and Lugonia Avenue	185	178
2	Chiming Industrial Project	614,328[3]	NEC of Almond Avenue and Nevada Street	1,520	142
3	The Almond Avenue Industrial Project	425,940[4]	SWC of Almond Avenue and Nevada Street	280	98
4	Prologis BMW Auto Parts	425,000[5]	SEC of Almond Avenue and Nevada Street	1,135	98
5	Name Unknown	95,100[6]	NWC of Almond Avenue and Nevada Street	1,040	22
6	Name Unknown	332,150[6]	North of Almond Avenue	1,230	77
7	M Block & Sons	355,403	NEC of Pioneer Avenue and Almond Avenue	890	82

Note: SF = square feet; NEC = northeast corner; NE = northeast; SWC = southwest corner; SEC = southeast corner; NWC = northwest corner

[1] Distance between nearest residences on the project site to warehouse loading dock

[2] Based on the Almond Avenue Industrial Project Traffic Impact Analysis, for high cube warehouse facilities the traffic generation rates in trips per thousand square feet is 0.131 for 3-axle trucks and 0.100 for 4-axle trucks (Kunzman 2012). Three and 4-axle trucks are presumed to have diesel engines; therefore, 0.231 trips per thousand square feet are assumed to be diesel trucks for each warehouse.

[3] Source: Kunzman, Redlands Project Traffic Impact Analysis, 2017.

[4] Source: Kunzman, Almond Avenue Industrial Project Traffic Impact Analysis, 2012.

[5] Source: Rincon, Air Quality Health Risk Assessment Memorandum for The Crossings at Redlands Residential Project, San Bernardino County, 2014.

[6] Estimated from Google Earth.

In April 2017, CARB released a technical advisory on how to reduce impacts related to diesel particulate matter entitled, *Strategies to Reduce Air Pollution Exposure near High-Volume Roadways* (CARB 2017b). Although the project is not exposed to high-volume roadways, the same TAC (diesel particulates) and source of pollutants (heavy duty diesel trucks) are the concern with distribution facilities, and the strategies to reduce impacts from high-volume roadways would be similarly applicable to residences near distribution facilities. CARB envisioned that the advisory would be used by planners and other stakeholders to identify combinations of strategies that can be implemented to reduce exposure at specific developments or to recommend the consideration of these strategies in policy or planning documents. The advisory identifies installation of indoor high efficiency filtration that removes pollution from the air as one of seven strategies for reducing impacts from diesel particulates. The other six strategies do not apply to the project because they are appropriate for plan level documents.

California building codes [2016 California Energy Code, Section 150.0 (m)(12)(B)] require mechanical ventilation with a minimum filtration efficiency (MERV) 6 in new residential construction (CARB 2017b). MERV 6 filters are medium efficiency filters that remove large particles such as mold spores and cat and dog dander, but do not remove the finer particles produced from heavy duty trucks. MERV 13 high efficiency filters are capable of removing both large and small particulates. According

to the advisory, MERV 13 filters remove more than 90 percent of particulates 1.0 to 10 microns in diameter, and more than 75 percent of particulates less than 1.0 microns in diameter. The following recommendations would be consistent with the strategies identified by CARB's 2017 advisory for reducing exposure to diesel particulate matter from heavy duty trucks:

- Install a central heating, ventilation, and air conditioning (HVAC) system (as is typical of three to four-story suburban residential projects with multiple buildings) that includes high efficiency particulate filters with a MERV rating of 13 for all residential units within 1,000 feet of distribution facility loading docks. Filtration systems must operate to maintain positive pressure within the building interior to prevent entrainment of outdoor air indoors.
- Weatherproof windows and doors with caulking and weather-stripping that is rated to last at least 20 years. Weatherproof should be maintained and replaced by the property owner, as necessary, to ensure functionality for the lifetime of the project.
- Inform occupants regarding the proper use of any installed air filtration system.

These measures would provide for the removal of particulates prior to entering into the indoor environment, thereby reducing the overall exposure of future residents. It is also important to note that heavy-duty trucks are prohibited from traveling on Nevada Street east of the project site, further reducing future residential exposure to TACs from truck traffic accessing distribution facilities in the vicinity of the project site.

3 Greenhouse Gases

3.1 Background

This section analyzes greenhouse gas emissions associated with the project and potential impacts related to climate change.

3.1.1 Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC 2014), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (95 percent or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-20th century (IPCC 2014).

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHG). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHG because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

Both natural processes and human activities emit GHGs. $CO_2$and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Observations of CO_2 concentrations, globally-averaged temperature, and sea level rise are generally within the range of the extent of the earlier IPCC projections. The recently observed increases in CH_4 and N_2O concentrations are smaller than those assumed in the scenarios in the previous assessments. Each IPCC assessment has used new projections of future climate change that have become more detailed as the models have become more advanced.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (California Environmental Protection Agency [CalEPA] 2006). Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years).

Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. CO_2 has a 100-year GWP of one. By contrast, CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than CO_2 on a molecule per molecule basis (IPCC 2007).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (CalEPA 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

3.1.2 Greenhouse Gas Emissions Inventory

Worldwide anthropogenic emissions of GHG were approximately 46,000 million metric tons (MMT, or gigatonne) of CO_2e in 2010 (IPCC, 2014). CO_2 emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, CO_2 was the most abundant accounting for 76 percent of total 2010 emissions. CH_4 emissions accounted for 16 percent of the 2010 total, while N_2O and fluorinated gases account for six and two percent respectively (IPCC 2014).

Total United States GHG emissions were 6,511.3 million metric tons (MMT or gigatonnes) of CO_2e in 2016 (U.S. EPA 2018). Total United States emissions have increased by 2.4 percent since 1990; emissions decreased by 1.9 percent from 2015 to 2016 (U.S. EPA 2018). The decrease from 2014 to 2015 was a result of multiple factors, including: (1) substitution from coal to natural gas and other non-fossil energy sources in the electric power sector and (2) warmer winter conditions in 2016 resulting in a decreased demand for heating fuel in the residential and commercial sectors (U.S. EPA 2018). Since 1990, U.S. emissions have increased at an average annual rate of 0.1 percent. In 2015, the industrial and transportation end-use sectors accounted for 29 percent each of GHG emissions (with electricity-related emissions distributed), respectively. Meanwhile, the residential and commercial end-use sectors accounted for 15 percent and 16 percent of CO_2e emissions, respectively (U.S. EPA 2018).

Based on the California Air Resource Board's (CARB) California Greenhouse Gas Inventory for 2000-2016, California produced 429.4 MMT of CO_2e in 2016 (CARB 2018b). The major source of GHGs in California is associated with transportation, contributing 41 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 23 percent of the state's GHG emissions, and electric power accounted for approximately 16 percent (CARB 2018b). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. CARB has projected that statewide unregulated GHG emissions for the year 2020 will be 509 MMT of CO_2e (CARB 2018c). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

3.1.3 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air, land, and water temperatures as well as precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all

the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The global combined land and ocean temperature data show an increase of about 0.89°C (0.69°C–1.08°C) over the period 1901–2012 and about 0.72°C (0.49°C–0.89°C) over the period 1951–2012 when described by a linear trend. Several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations are in agreement that LSAT, as well as sea surface temperatures, has increased. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014).

According to the CalEPA's 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include decreased snow pack, sea level rise, and increase in extreme heat days per year, high ground-level O_3 days, large forest fires, and drought (CalEPA 2010). Below is a summary of some of the potential impacts that could be experienced in California as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in many areas of California. Climate change may increase the concentration of ground-level O_3, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby lessening the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Energy Commission [CEC] 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage. During the same period, sea level rose eight inches along California's coast. California's temperature has risen 1°F, mostly at night and during the winter, with higher elevations experiencing the highest increase. Many Southern California cities have experienced their lowest recorded annual precipitation twice within the past decade. In a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR] 2008; CCCC 2009).

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers. Based upon historical data and modeling DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR 2008).

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. According to The Impacts of Sea-Level Rise on the California Coast, prepared by the California Climate Change Center (CCCC) (CCCC 2009), climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 mm per year (World Meteorological Organization [WMO] 2013). As a result, sea levels averaged over the last decade were about 8 inches higher than those of 1880 (WMO, 2013). Sea levels are rising faster now than in the previous two millennia, and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC report (2013) predicts a mean sea–level rise of 11-38 inches by 2100. This prediction is more than 50 percent higher than earlier projections of 7-23 inches, when comparing the same emissions scenarios and time periods. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to salt water intrusion. In addition, increased CO_2 emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a $30 billion annual agricultural industry that produces half of the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater air pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC 2006).

Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on the local and global levels. Increasing concentrations of GHGs are likely to accelerate the rate and severity of climate change impacts. Scientists project that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) during the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan 2006).

3.1.4 Regulatory Setting

The following regulations address both climate change and GHG emissions.

Federal Regulations

The U.S. Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 05-1120) held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act. The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. In 2012 the U.S. EPA issued a Final Rule that establishes the GHG permitting thresholds that determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

In 2014, the U.S. Supreme Court in *Utility Air Regulatory Group v. EPA* (134 S. Ct. 2427 [2014]) held that U.S. EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT).

California Regulations

CARB is responsible for the coordination and oversight of State and local air pollution control programs in California. California has a numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020, and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines CARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 statewide goals. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (CARB 2014).

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The updated GHG emission reduction targets take effective October 1, 2018.

The SCAG was assigned targets of an 8 percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill 32 (SB 32) into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) CO_2e by 2030 and two MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State.

Senate Bill 1383

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

The bill also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the ARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program, which was last updated by SB X 1-2 in 2011. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

On September 10, 2018, the governor issued Executive Oder B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Environmental Quality Act

Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *State CEQA* Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. To date, a variety of air districts have adopted quantitative significance thresholds for GHGs.

Local Regulations

In September 2011, San Bernardino County adopted the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*[2] (Emissions Reduction Plan), which outlines

[2] In 2014, San Bernardino County Associated Governments (SANBAG) adopted the San Bernardino County Regional Greenhouse Gas Reduction Plan. The plan includes an inventory of GHG emissions and an evaluation of reduction measures that could be adopted by the partnership cities of San Bernardino County. The partnership cities that participated include: Adelanto, Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Hesperia, Highland, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Victorville, Yucaipa, and Yucca Valley. The 2014 San Bernardino County Regional Greenhouse Gas Reduction Plan does not apply to the unincorporated areas of the County.

strategies to use energy more efficiently, harness renewable energy to power buildings, enhance access to sustainable transportation modes, and recycle waste. The Emissions Reduction Plan was prepared to accomplish the following goals:

- Reduce emissions from activities over which the County has jurisdictional and operational control consistent with the target reductions of the AB 32 Scoping Plan
- Provide estimated GHG reductions associated with the County's existing sustainability efforts and integrate the County's sustainability efforts into the discrete actions of this Plan
- Provide a list of discrete actions that will reduce GHG emissions
- Approve a GHG Plan that satisfies the requirements of Section 15183.5 of the California Environmental Quality Act (CEQA) Guidelines, so that compliance with the GHG Plan can be used in appropriate situations to determine the significance of a project's effects relating to GHG emissions, thus providing streamlined CEQA analysis of future projects that are consistent with the approved GHG Plan

The Emissions Reduction Plan also includes a GHG inventory that summarizes emissions associated with the community and municipal operations. The County's 2020 goal is to decrease emissions to a level at least 15 percent below 2007 emissions, which was used as the baseline year. The County's GHG Reduction Plan and its reduction goal are based on AB 32 and CARB's recommendations to ensure California GHG emissions are less than 1990 GHG emissions by the year 2020. The current Emissions Reduction Plan does not specifically account for SB 32.

3.2 Impact Analysis

3.2.1 Significance Thresholds

Based on Appendix G of the State CEQA Guidelines, impacts related to GHG emissions from the project would be significant if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

In late 2015, the California Supreme Court's Newhall Ranch decision confirmed that there are multiple potential pathways for evaluating GHG emissions consistent with CEQA, depending on the circumstances of a given project (Center for Biological Diversity v. Department of Fish and Wildlife (2015) 62 Cal. 4th 204). Given the legislative attention and judicial action regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed through the year 2050, the Association of Environmental Professionals' (AEP) Climate Change Committee published a white

paper in October 2016 to provide guidance on defensible GHG thresholds for use in CEQA analyses and GHG reduction targets in climate action plans in light of the change in focus on the 2030 reduction target and questions raised in the Newhall Ranch case.

The AEP Climate Change Committee white paper identified seven thresholds for operational emissions. The following four methods described are the most widely used evaluation criteria[3]:

(1) **Consistency with a Qualified GHG Reduction Plan.** For a project located within a jurisdiction that has adopted a qualified GHG reduction plan (as defined by CEQA Guidelines Section 15183.5), GHG emissions would be less than significant if the project is anticipated by the plan and fully consistent with the plan. However, projects with a horizon year beyond 2020 should not tier from a plan that is qualified up to 2020.

(2) **Bright line Thresholds.** There are two types of bright line thresholds:
   a. **Standalone Threshold.** Emissions exceeding standalone thresholds would be considered significant.
   b. **Screening Threshold.** Emissions exceeding screening thresholds would require evaluation using a second tier threshold, such as an efficiency threshold or other threshold concept to determine whether project emissions would be considered significant.

   However, projects with a horizon year beyond 2020 should take into account the type and amount of land use projects and their expected emissions out to the year 2030.

(3) **Efficiency Thresholds.** Land use sector efficiency thresholds are currently based on AB 32 targets and should not be used for projects with a horizon year beyond 2020. Efficiency metrics should be adjusted for 2030 and include applicable land uses.

(4) **Percent Below "Business as Usual" (BAU).** GHG emissions would be less than significant if the project reduces BAU emissions by the same amount as the statewide 2020 reductions. However, this method is no longer recommended following the Newhall Ranch ruling.

Because the County of San Bernardino has a qualified GHG reduction plan and associated checklist, the proposed project is evaluated based on consistency with that plan. Nevertheless, project-generated emissions were quantified to provide an understanding of the emissions associated with the proposed project.

3.2.2 Study Methodology

CO_2, CH_4, and N_2O emissions were calculated to identify the magnitude and nature of the project's potential GHG emissions and environmental effects. The analysis focuses on CO_2, CH_4, and N_2O because these make up 98.9 percent of all GHG emissions by volume (IPCC 2007) and are the GHGs that the project would emit in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered for the analysis, but because the project is a residential development, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes. Emissions of all GHGs are converted into their equivalent GWP in MT of CO_2e. Small amounts of other GHGs (such as chlorofluorocarbons [CFCs]) would also be emitted; however, these other GHGs would not substantially add to the total GHG emissions.

[3] The three other thresholds are best management practices/best available mitigation, compliance with regulations, and a hybrid threshold concept: separate transportation and non–transportation threshold. These are not commonly used and do not specifically apply to this project.

Calculations are based on the methodologies discussed in the California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change white paper (CAPCOA 2008) and included the use of the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009).

GHG emissions associated with the project were calculated using the CalEEMod version 2016.3.2. CalEEMod assumptions and results are contained in Appendix B.

3.2.3 Operational Emissions

CalEEMod calculates operational emissions from the proposed project, which include CO_2, N_2O, and CH_4. Energy-related emissions are from electricity and natural gas use. The emissions factors for natural gas combustion are based on EPA's AP-42, (Compilation of Air Pollutant Emissions Factors) and CCAR. Electricity emissions are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour (CalEEMod User Guide, 2016). As mentioned in Section 2.2.1 *Methodology and Significance Thresholds*, based on the requirements of the 2019 Title 24, Part 6 standards, all new residential uses under three stories must install solar panels. Because the project would include three stories and construction would begin in 2019, the 2019 Title 24 code requirements would be implemented. The lighting energy intensity factor was also reduced by 75 percent to account for the requirements of 2016 Title 24.

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, U.S. EPA, and district supplied emission factor values (CalEEMod User Guide 2016).

Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide, 2016). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

Emissions from water and wastewater use calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Southern California. Additionally, indoor water use was reduced by 20 percent per the requirements of CALGreen (Part 11 of Title 24).

For mobile sources, CO_2 and CH_4 emissions from vehicle trips to and from the project site were quantified using CalEEMod. Because CalEEMod does not calculate N_2O emissions from mobile sources, N_2O emissions were quantified using the California Climate Action Registry General Reporting Protocol (January 2009) direct emissions factors for mobile combustion (see Appendix B for calculations). The estimate of total daily trips associated with the project was based on CalEEMod defaults. Emission rates for N_2O emissions were based on the vehicle fleet mix output generated by CalEEMod and the emission factors found in the CCAR General Reporting Protocol.

3.2.4 Construction Emissions

Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the CEQA and Climate Change white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA 2008). In accordance with SCAQMD's recommendation, GHG emissions from construction of the project are amortized over a 30-year period (the assumed life of the project) and added to annual operating emissions.

Construction of the proposed project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. As mentioned in Section 2.2.1, *Methodology and Significance Thresholds*, it was assumed that construction of the project would begin in January 2018 and require the export of approximately 54,600 CY of material based on applicant-provided information. CalEEMod default construction phase lengths were used for the site preparation and paving phases; however, the grading, building construction, and architectural coating phases were extended from the default time frame to reflect a more accurate construction schedule. The grading phase was extended to be triple the default phase length (revised from 20 days to 60 days) to provide a more accurate estimate of material export. The building construction phase was extended as well from 230 days to 300 days and the architectural coating phase was extended to overlap with half of building construction because individual buildings would be painted as construction is completed, representing more realistic construction practices. CalEEMod assumptions and results are contained in Appendix B.

3.2.5 Project Impacts

The following summarizes project emissions to provide an understanding of the emissions associated with the proposed project.

Construction Emissions

As shown in Table 7, construction activity associated with the project would generate an estimated 1,463 MT of CO_2e. When amortized over a 30-year period, construction of the project would generate approximately 49 MT of CO_2e per year.

Table 7 Estimated Construction Emissions of Greenhouse Gases (MT CO_2e)

	Emissions
2019	29.7
2020	1,041.3
2021	391.6
Total	**1,462.6**
Amortized over 30 years	48.8

See Appendix B for CalEEMod results

Combined Construction, Stationary, and Mobile Source Emissions

Table 8 combines the construction, operational, and mobile GHG emissions associated with development of the project. The annual emissions would total approximately 2,761 MT of CO_2e. Based on the GHG inventory completed for the County included in the Emissions Reduction Plan, County emissions totaled approximately 6.3 million MT of CO_2e in 2007 and the projected emissions for 2020 are 7.6 million[4] MT of CO_2e. The project's emissions would total approximately <0.1% of the County emissions in both 2007 and 2020.

[4] The projected 2020 emissions are not adjusted to reflect adopted or future legislation that will result in statewide GHG emissions reductions.

Table 8 Combined Annual Emissions (MT CO_2e/year)

Emission Source	Project Emissions
Construction	48.8
Operational	
Area	62.8
Energy	667.7
Solid Waste	57.4
Water	117.2
Mobile	
CO_2 and CH_4	1,720.9
N_2O	86.1
Total	**2,760.9**

Source: Calculations were made in CalEEMod, see Appendix B for full model output. Values have been rounded

Consistency with GHG Reduction Plans and Policies

As mentioned in Section 3.1.4, *Regulatory Setting*, in September 2011, San Bernardino County adopted the County of San Bernardino Greenhouse Gas Emissions Reduction Plan, which details the strategies to be initiated at a local level that will achieve the GHG reductions necessary to meet the goals outlined in AB 32. Pursuant to CEQA Guidelines Sections 15130(d) and 15064(h)(3), approved land use plans for the reduction of GHG emissions can be used in GHG impact analysis and a project's incremental contribution to cumulative GHG emissions will not be considered significant if the project complies with the established plan. The Greenhouse Gas Reduction Plan is consistent with CEQA Section 15183.5 and allows projects which are consistent with the CAP to be considered to have less than significant GHG emissions impacts. Therefore, a conformance evaluation with the 2011 San Bernardino Greenhouse Gas Reduction Plan was conducted to evaluate the projects consistency with the reduction strategies detailed in the Plan. The conformance evaluation showing project consistency with the Reduction Plan is shown in Table 9. As demonstrated in Table 9, the project would be consistent with applicable goals and objectives included in the Reduction Plan.

Table 9 Consistency with Applicable Emissions Reduction Plan GHG Emission Reduction Strategies

Goals	Project Consistency
Building Energy	
Goal EE 1: Reduce GHG emissions from the generation of electricity by reducing electricity use through increased efficiency and project design that incorporates renewable energy.	
Objective EE 1.1 Promote Community energy conservation and encourage incorporation of green features in buildings.	**Consistent** The project would comply with CALGreen Building Standards. Additionally, under state law, appliances that are purchased for the project - both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture.
Objective EE .12 Establish policies and programs to improve energy efficiency and increase renewable energy use in existing buildings.	**Not Applicable** This objective is aimed at government agencies, not private developers. Nonetheless, the project would comply with applicable energy efficiency requirements.
Objective EE 1.3	**Not Applicable**

Goals	Project Consistency
Establish policies, standards and incentives to increase energy efficiency and alternative energy use in new building construction.	This objective is aimed at government agencies, not private developers. Nonetheless, the project would comply with applicable energy efficiency requirements.
Goal EE 2: Reduce GHG emissions from the generation of electricity by promoting and supporting the siting of new renewable energy generation facilities.	
Objective EE 2.1 Establish and promote policies and strategies that facilitate the siting of new renewable energy generation.	**Not Applicable** This objective is aimed at government agencies, not private developers.
Objective EE 2.2 Establish and promote policies and strategies that facilitate renewable energy generation and co-generation projects where feasible and appropriate.	**Not Applicable** This objective is aimed at government agencies, not private developers.
Objective EE 2.3 Establish and implement measures that support the purchase and use of renewable and alternative energy.	**Not Applicable** Not applicable because this objective is aimed at public agency actions.
Transportation and Land Use	
Goal TL 1: Promote land use strategies that decrease reliance on automobile use, increase the use of alternative modes of transportation, maximize efficiency of urban services provision and reduce emissions of greenhouse gases.	
Objective TL 1.1 Encourage development that promotes non-automobile transportation.	**Consistent** The project site is located approximately 0.5 miles from the nearest transit stops, which include OmniTrans Route 15, located on Rialto and OmniTrans Routes 8 and 19 located on West Redlands Boulevard. Additionally, sidewalks are located across the street from the proposed project site, west of the project site towards California Street, as well as along California Street, and north of the project site along Almond Avenue.
Objective TL 1.2 Promote infill, mixed-use, and higher density development, and provide incentives to support the creation of affordable housing in mixed use zones.	**Consistent** The project site is located in an area surrounded by existing development, and would add residential uses. As such, the project would be high-density infill development that would minimize negative impacts. The portion of this measure regarding providing incentives to support the creation of affordable housing in mixed-use zones is not applicable because this objective is aimed at public agency actions.
Goal TL 2: Reduce GHG emissions by reducing vehicle miles traveled, by encouraging the use of alternative fuels, alternative modes of transportation and providing roadway improvements that improve mobility and reduce congestion.	
Objective TL 2.1 Reduce VMT related-emissions by implementing and supporting trip reduction programs.	**Not Applicable** Not applicable because this objective is aimed at public agency actions. Nonetheless, the project would be required to comply with applicable trip reduction programs.
Objective TL 2.2 Reduce VMT-related emissions by encouraging the use of alternative modes of transportation.	**Consistent** The project site is located approximately 0.5 miles from the nearest transit stops, which include OmniTrans Route 15, located on Rialto and OmniTrans Routes 8 and 19 located on West Redlands Boulevard. Additionally, sidewalks are located across the street from the proposed project site, west of the project site towards California Street, as well as along California Street, and north of the project site along Almond Avenue. Additionally, the project site is approximately 0.5

Goals	Project Consistency
	miles from a variety of services including restaurants, a post office, a place of worship, a learning center, and other retail and commercial services.
Objective TL 2.3 Implement traffic and roadway management strategies to improve mobility and efficiency, and reduce associated emissions.	**Not Applicable** Not applicable because this objective is aimed at public agency actions.
Objective TL 2.4 Support and promote the use of low- and zero-emission vehicles, and alternative fuels and other measures to directly reduce emissions from motor vehicles.	**Not Applicable** Not applicable because this objective is aimed at public agency actions. Nevertheless, more alternative vehicles may be purchased by residents as additional options become available for alternative fuels and alternative fueling stations.
Goal TL 3: Reduce GHG emissions through public education relative to transportation systems.	
Objective TL 3.1 Continue to develop and implement educational programs relative to the various modes of transportation.	**Not Applicable** Not applicable because this objective is aimed at public agency actions. Nevertheless, residents living at the project site may participate in educational programs relative to various modes of transportation.
Goal TL 4: Reduce GHG emissions by regulating the idling of diesel-fueled vehicles and equipment and encouraging the use of alternative fuels and transportation technologies.	
Objective TL 4.1 Reduce the exhaust emissions of diesel-fueled vehicles and equipment.	**Consistent** Current state law restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Solid Waste/Landfills	
Goal SW 1: Reduce GHG emissions from waste through landfill methane recovery, waste diversion (including waste minimization, reuse, and recycling) and public education.	
Objective SW 1.1 Increase methane recovery at County landfills where such systems are currently installed.	**Not Applicable** Not applicable because this objective is aimed at public agency actions.
Objective SW 1.2 Install methane recovery systems at County landfills where no such systems are currently installed.	**Not Applicable** Not applicable because this objective is aimed at public agency actions.
Objective SW 1.3 Expand current waste reduction and recycling plans, including outreach and education programs.	**Consistent** The project would be required to participate in waste diversion programs. The project would also be subject to all applicable state and City requirements for solid waste reduction as they change in the future.
Agriculture and Resource Conservation	
Goal WC 1: Reduce GHG emissions associated with water use through conservation and efficiency measures.	
Objective OS/RC 1.1 Reduce GHG emissions by retaining agricultural uses and conserving open space resources by supporting voluntary actions in cooperation with the resource conservation districts, the National Resource Conservation Service, the Department of Conservation, and private organizations.	**Not Applicable** Not applicable because this objective is aimed at public agency actions. Nevertheless, the project would provide 98,846-sf, or 2.27 acres, of landscaped open space.
Objective OS/RC 1.1 Promote and encourage open space and natural	**Not Applicable** Not applicable because this objective is aimed at public

Goals	Project Consistency
resource preservation, as well as conservation of agricultural resources to allow for the sequestration of CO_2 through these resources.	agency actions. However, the project would provide 50,300 sf, or 1.2 acres, of open space.
Water Conservation	
Goal WC 1.1: Reduce GHG emissions associated with water use through conservation and efficiency measures	
Objective WC 1.1	**Consistent**
Support conservation and protection of water resources through the efficient use of water	The proposed structures would be required to be consistent with CALGreen standards. As such, the project would be equipped with low-flow plumbing fixtures, reducing water use.

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Appendix A

Site Plan

PROJECT SUMMERY

BUILDING 1										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTAL GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
STU										
A1	20		14,540		1,540		16,080	13,600	1,100	14,700
A2	6		6,072		792		6,864	5,712	564	6,276
A3	12		10,008		1,008		11,016	9,252	720	9,972
A4	4		3,428		252		3,680	3,172	168	3,340
B1	8		8,296		784		9,080	7,672	600	8,272
B2	12		12,756		1,080		13,836	12,096	696	12,792
B3	0		0		0		0	0	0	0
TOTAL	**62**		**55,100**		**5,456**		**60,556**	**51,504**	**3,848**	**55,352**
BUILDING 2										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTAL GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
STU	0		0		0		0	0	0	0
A1	20		14,540		1,540		16,080	13,600	1,100	14,700
A2	6		6,072		792		6,864	5,712	564	6,276
A3	12		10,008		1,008		11,016	9,252	720	9,972
A4	4		3,428		252		3,680	3,172	168	3,340
B1	8		8,296		784		9,080	7,672	600	8,272
B2	12		12,756		1,080		13,836	12,096	696	12,792
B3	0		0		0		0	0	0	0
TOTAL	**62**		**55,100**		**5,456**		**60,556**	**51,504**	**3,848**	**55,352**
BUILDING 3										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTLA GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
STU	0		0				0	0	0	0
A1	20		14,540		1,540		16,080	13,600	1,100	14,700
A2	6		6,072		792		6,864	5,712	564	6,276
A3	12		10,008		1,008		11,016	9,252	720	9,972
A4	4		3,428		252		3,680	3,172	168	3,340
B1	8		8,296		784		9,080	7,672	600	8,272
B2	12		12,756		1,080		13,836	12,096	696	12,792
B3	0		0		0		0	0	0	0
TOTAL	**62**		**55,100**		**5,456**		**60,556**	**51,504**	**3,848**	**55,352**
BUILDING 4										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTAL GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
STU	0		0		0		0	0	0	0
A1	20		14,540		1,540		16,080	13,600	1,100	14,700
A2	6		6,072		792		6,864	5,712	564	6,276
A3	12		10,008		1,008		11,016	9,252	720	9,972
A4	4		0		24		8	24	8	16
B1	8		8,296		784		9,080	7,672	464	8,272
B2	12		12,756		1,080		13,836	12,096	696	12,792
B3	0		0		0		0	0	0	0
TOTAL	**62**		**51,672**		**5,228**		**56,884**	**48,356**	**3,552**	**52,028**
BUILDING 5										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTAL GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
STU	15		7,170		1,380		8,550	6,600	900	7,500
A1	8		0		0		0	0	0	0
A2	0		0		0		0	0	0	0
A3	0		0		0		0	0	0	0
B1	0		0		0		0	0	0	0
B2	0		0		0		0	0	0	0
B3	0		0		0		0	0	0	0
C1	6		7,638		570		8,208	7,164	519	7,683
TOTAL	**29**		**7,170**		**1,380**		**8,550**	**6,600**	**900**	**7,500**
BUILDING 6										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTAL GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
CARRIAGE	2		2,396		276		2,672	2,282	248	2,530
TOTAL	**2**		**2,396**		**276**		**2,672**	**2,282**	**248**	**2,530**
BUILDING 7										
UNIT MIX & BLD. AREA	**COUNT**		**GROSS AREA**		**GROSS BAL**		**TOTAL GROSS**	**NET AREA**	**NET BAL**	**TOTAL NET**
CARRIAGE	2		2,396		276		2,672	2,282	248	2,530
TOTAL	**2**		**2,396**		**276**		**2,672**	**2,282**	**248**	**2,530**

SITE INFORMATION:

415,686.27 SF - 9.54 AC (gross)
401,168.22 SF - 9.21 AC (net)

DENSITY INFORMATION:

Units 280 Units + 1 Permanent Model + 1 Manager Unit

Density 280 / 9.21 = 30.4 units per acre

Three Building Types:

Type A - 3 - Stories (4 Buildings)
Type B - 3 - Stories (1 Building)
Type C - 2 - Stories (2 Buildings)
Clubhouse - 1 & 2 Stories with roof-top deck

PARKING:	
GARRAGE	195
CARPORT	142
OPEN	93
HANDICAP	24
LIFTERS	20
TOTAL	474
RATIO	1.70

SITE INFORMATION					
	GROSS ACRES	GROSS SQ. FT.	NET ACRES	NET SQ. FT.	%
SITE AREA	**9.54**	-	**9.54**		
LANDSCAPE / OPEN SPACE		**92,845.60**	-	-	**23%**
PLANTERS		35,286.36			9%
BLDG. COURTYARDS		17,421.73			4%
POOL DECK		10,469.42			3%
BARK PARK		642.24			0%
PRIVATE BALCONIES		23,204.00			6%
POOL		3,485.91			1%
WATER FEATURES		2,335.94	.23	.23	1%
PAVING		**177,070.19**	-	-	**44%**
ASPHALT		139,276.81			35%
SIDEWALKS & COMMON PATIOS		17,421.73			5%
DECORATIVE PAVING		10,469.42			5%
BUILDING COVERAGE		**130.918.10**	-	-	**33%**
APARTMENT BUILDINGS		118,207.89			29%
CLUBHOUSE		8,028.35			2%
CARRIAGE UNITS		4,681.86			1%

UNIT MIX BY BUILDING										
	STU	A1	A2	A3	A4	B1	B2	B3	C1	**TOTAL**
BUILDING 1	0	20	6	12	4	8	12	0	0	62
BUILDING 2	0	20	6	12	4	8	12	0	0	62
BUILDING 3	0	20	6	12	4	8	12	0	0	62
BUILDING 4	0	20	6	12	4	8	12	0	0	62
BUILDING 5	17	0	0	0	0	0	0	0	10	27
CARRIAGE UNITS	0	0	0	0	0	0	0	4	0	4
PERMANENT MODEL	0	0	0	0	0	0	1	0	0	1
TOTAL	**17**	**80**	**24**	**48**	**16**	**32**	**49**	**4**	**10**	**280**

UNIT TYPES	GROSS AREA	GROSS BAL AREA	TOTAL GROSS	NET AREA	NET BAL AREA	TOTAL NET
STU (Studio)	478	92	570	440	60	500
		GROSS BAL AREA				
A1 (One Bedroom)	727	804		680	55	735
A2 (One Bedroom)	1012	92	1144	952	94	1046
A3 (One Bedroom)	834	84	918	771	60	831
A4 (One Bedroom)	857	63	920	793	42	835
B1 (Two Bedroom)	1037	98	1135	959	75	1034
B2 (Two Bedroom)	1063	90	1153	1008	58	1066
B3 (Two Bedroom)	896	43	939	833	36	869
C1 (Three Bedroom)	1273	95	1368	1194	86.5	1280.5
CARRIAGE	1198	138	1336	1141	124	1265

BUILDING AREA BY FLOOR										
UNIT MIX & BLD. AREA	**NET AREA FLOOR 1**	**NET AREA FLOOR 2**	**NET AREA FLOOR 3**	**NET AREA TOTAL**	**GROSS AREA FLOOR 1**	**GROSS AREA FLOOR 2**	**GROSS AREA FLOOR 3**	**COMMON AREA**	**GROSS AREA TOTAL**
BUILDING 1	11376	20,064.00	20,064.00	51,504.00	26,557	21,144	21,504	5,363	79,930
BUILDING 2	11376	20,064.00	20,064.00	51,504.00	26,557	21,144	21,504	5,363	79,930
BUILDING 3	11376	20,064.00	20,064.00	51,504.00	26,557	21,144	21,504	5,363	79,930
BUILDING 4	11376	20,064.00	20,064.00	51,504.00	26,557	21,144	21,504	5,363	79,930
BUILDING 5	8144.22	7,748.00	7,748.00	23,640.22	9,286	9,608	9,608	1,286	31,075
BUILDING 6		2,282		2,282.00	2,396	2,396			4,792
BUILDING 7		2,282		2,282.00	2,396	2,396			4,792
TOTAL BUILDING SQ. FT.				**234,220**	120,304				**360,380**

PROJECT INFORMATION

OWNER:

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CONTACT: JIM MAUGE

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CIVIL ENGINEER:

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SAN BERNARDINO CA 92408
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David.Ragland@transtech.org
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LANDSCAPE ARCHITECT DESIGN

COMMUNITY WORKS
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EMAIL:
tim@comworksdg.com
CONTACT:
TIM MALONEY

SHEET INDEX

VICINITY MAP

12/13/2018 11:38:13 AM E:\Drawings\1809 Westgrove 9.5_282_Central Model_Galcala.rvt

PLOT DATE:

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WESTGROVE 9.5 APARTMENTS

LUGONIA AVENUE, REDLANDS, CA 92374

SCALE: 12" = 1'-0"

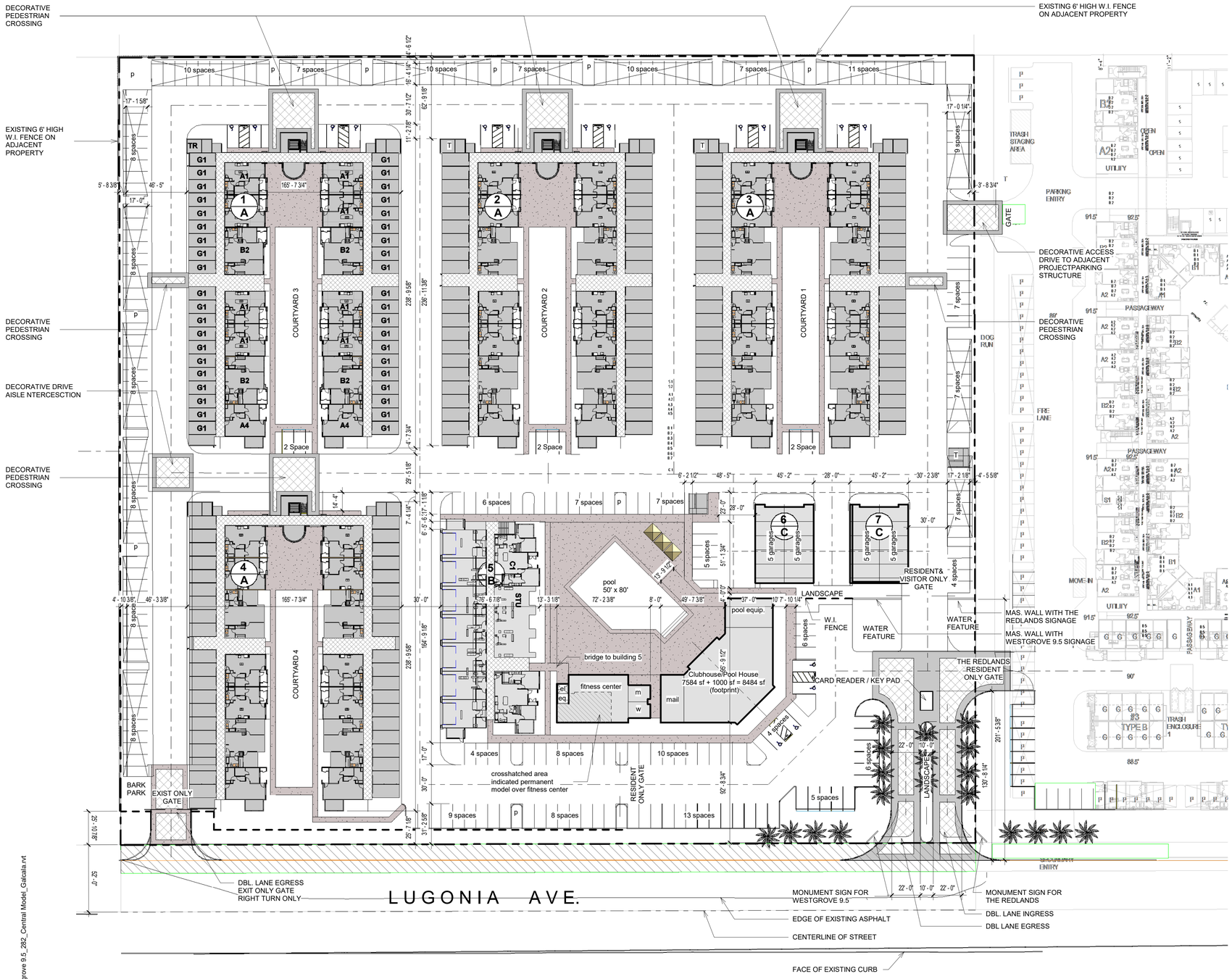
PROJECT SUMMARY

Revision Number | Revision Date | Revision Description

PROJECT NO.: 1809

A-01

11/29/2018



SITE LEGEND

- PROPERTY LINE
- SETBACK LINE
- FENCE LINE
- PAVED DRIVE AISLE
- BUILDING FOOTPRINT
- DEDICATION
- T — TRASH ENCLOSURE / TRASH ROOM
- DECORATIVE PAVING WITH CONCRETE BANDING
- INDICATES CARPORT

PLOT DATE: 12/13/2018 11:38:18 AM E:\Drawings\1809 Westgrove 9.5_282_Central Model_Galcala.rvt

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WESTGROVE 9.5 APARTMENTS

LUGONIA AVENUE, REDLANDS, CA 92374

SCALE: As indicated

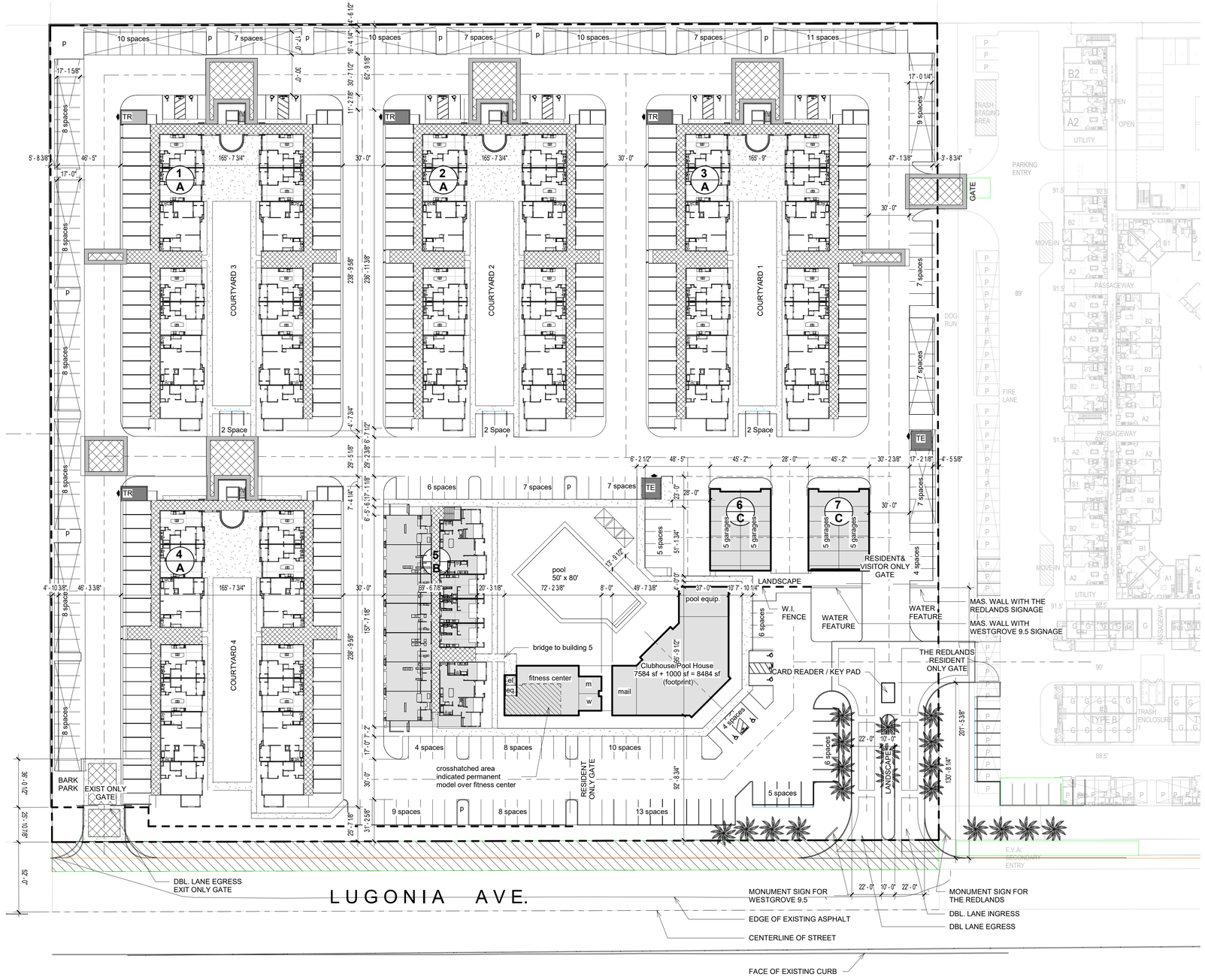
SITE PLAN

Revision Number	Revision Date	Revision Description

PROJECT NO.: 1809

A-03.1

12/11/2018



1 TRASH AND RECYCLING PLAN
1" = 40'-0"

TRASH SUMMERY - OVERALL

UNITS SERVED		280		
WASTE GENERATED (LBS)		7.5	LBS PER DAY	2100
CUBIC YARD CONVERSION		0.01	CU YD PER DAY	21.0
WEEKLY MULTIPLIER	7	CU YD	CU YD PER WEEK	147
CONTAINER SIZE	3	COMPACTION RATIO		0.33
PICK UPS PER WEEK	2	NUMBER OF BINS REQUIRED		8

QUANITITY OF REQURED BINS: 8 TRASH + 8 RECYCLE BINS PROVIDED

WASTE STORAGE REQUIREMENT

	REFUGE SF	RECYCLE SF
WASTE GENERATED (LBS)	512	512
CUBIC YARD CONVERSION	630	630

TRASH / RECYCLE LEGEND

- TE — TRASH / RECYCLE ENCLOSURE
- TR — TRASH / RECYCLE ROOM & CHUTE LOCATIONS
- TRASH / RECYCLE ACCESS

TRASH NARRATIVE

The written Solid Waste Management and Recycling is explained as follows:

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WESTGROVE 9.5 APARTMENTS

LUGONIA AVENUE, REDLANDS, CA 92374

TRASH AND RECYLING PLAN

SCALE: As indicated

Revision Number | Revision Date | Revision Description

PROJECT NO.: 1809

A-03.3

11/29/18

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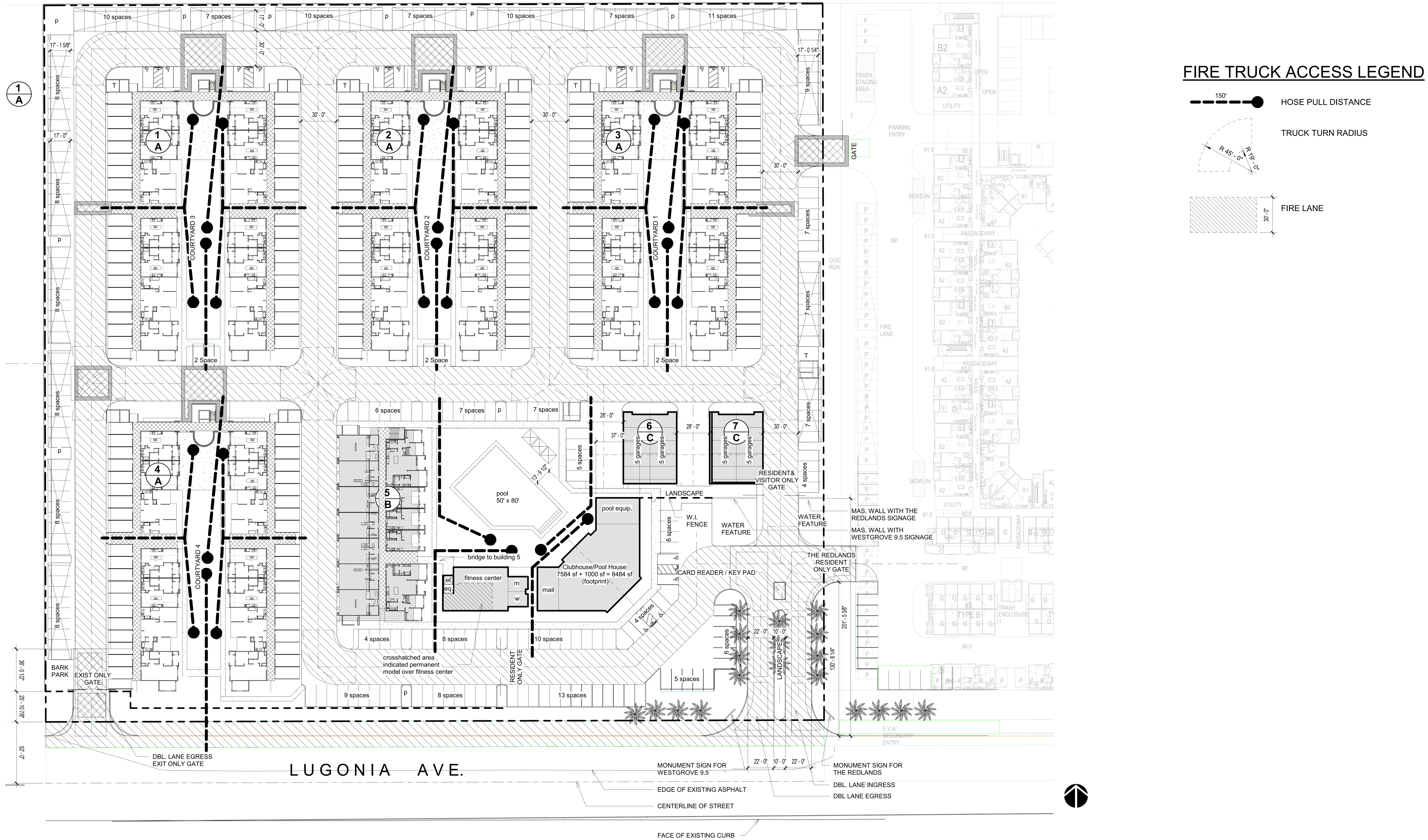
FIRE TRUCK ACCESS LEGEND
150'
HOSE PULL DISTANCE
TRUCK TURN RADIUS
R 45' - 0"
R 19' - 0"
FIRE LANE
30' - 0"
COURTYARD 1
COURTYARD 2
COURTYARD 3
COURTYARD 4
pool
50' x 80'
pool equip.
bridge to building 5
fitness center
Clubhouse/Pool House
7584 sf + 1000 sf = 8484 sf
(footprint)
mail
LANDSCAPE
W.I. FENCE
WATER FEATURE
RESIDENT& VISITOR ONLY GATE
MAS. WALL WITH THE REDLANDS SIGNAGE
MAS. WALL WITH WESTGROVE 9.5 SIGNAGE
THE REDLANDS RESIDENT ONLY GATE
CARD READER / KEY PAD
RESIDENT ONLY GATE
crosshatched area indicated permanent model over fitness center
BARK PARK
EXIST ONLY GATE
DBL. LANE EGRESS
EXIT ONLY GATE
LUGONIA AVE.
MONUMENT SIGN FOR WESTGROVE 9.5
EDGE OF EXISTING ASPHALT
CENTERLINE OF STREET
FACE OF EXISTING CURB
MONUMENT SIGN FOR THE REDLANDS
DBL. LANE INGRESS
DBL LANE EGRESS
E.V.A./ SECONDARY ENTRY
TRASH STAGING AREA
PARKING ENTRY
GATE
DOG RUN
FIRE LANE
PASSAGEWAY
MOVE-IN
UTILITY
OPEN
TRASH ENCLOSURE
TYPE B

SCALE: 1" = 40'-0"

FIRE ACCESS PLAN

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WESTGROVE 9.5 APARTMENTS

LUGONIA AVENUE, REDLANDS, CA 92374

Revision Number	Revision Date	Revision Description

PROJECT NO.: 1809

A-03.4

12/11/2018

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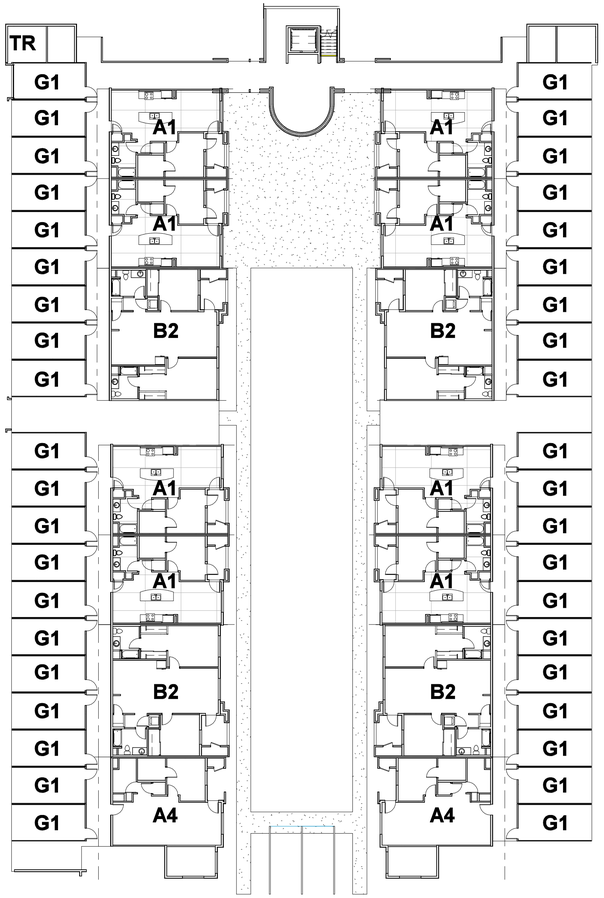
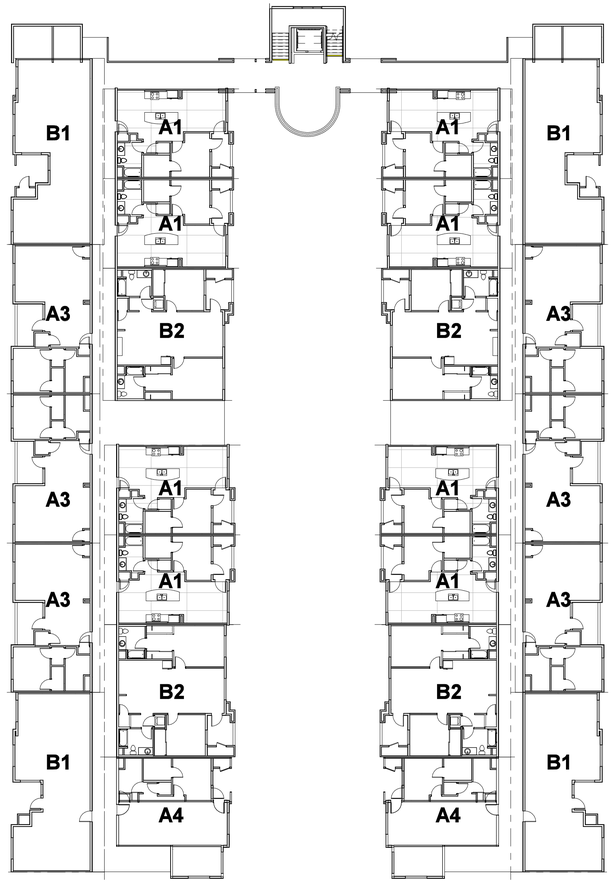


1 BUILDING TYPE "A" FIRST FLOOR
1" = 20'-0"



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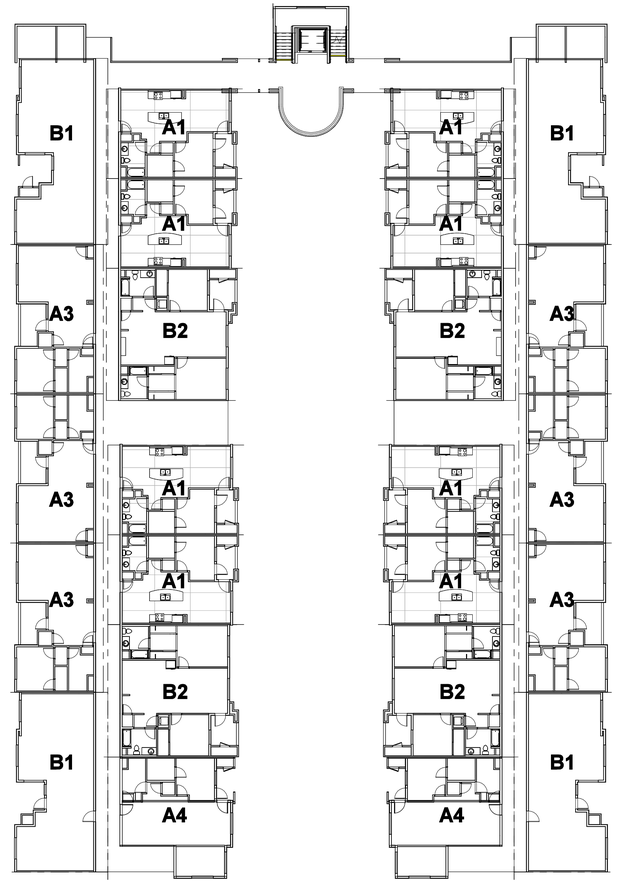

3 BUILDING TYPE "A" THIRD FLOOR PLAN
1" = 20'-0"

SCALE: 1" = 20'-0"

BUILDING TYPE "A" FLOOR PLANS

Revision Number | Revision Date | Revision Description

PROJECT NO.: 1809

A-04

12/11/2018

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WESTGROVE 9.5 APARTMENTS

LUGONIA AVENUE, REDLANDS, CA 92374

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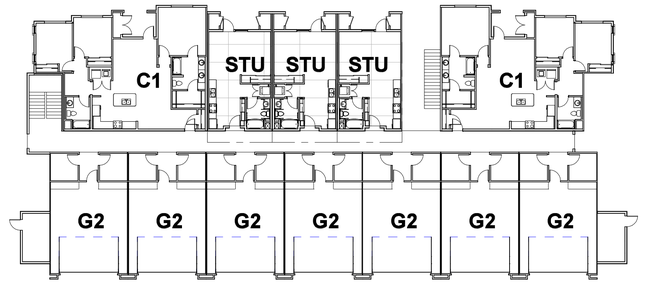

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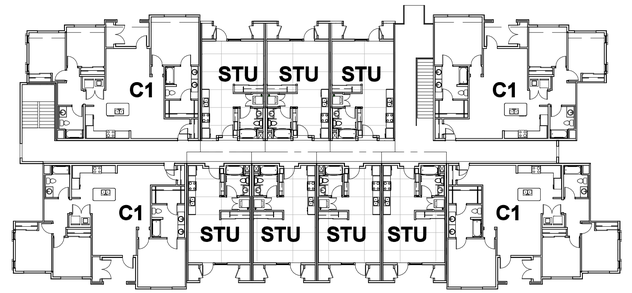

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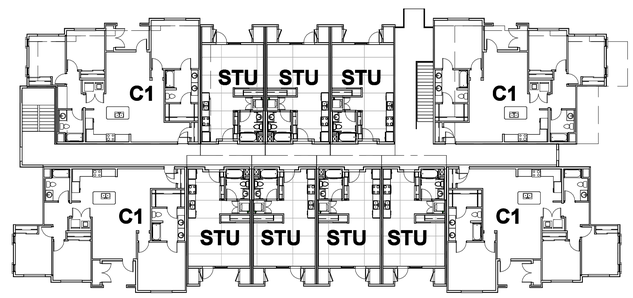

③ BUILDING TYPE "B" THIRD FLOOR PLAN
1" = 20'-0"

BUILDING TYPE "B" FLOOR PLANS

SCALE: 1" = 20'-0"

Revision Number | Revision Date | Revision Description

PROJECT NO.: 1809

A-04.1

12/11/2018

WESTGROVE 9.5 APARTMENTS

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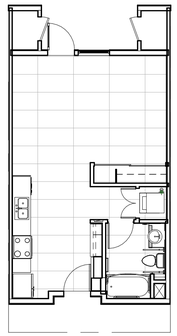

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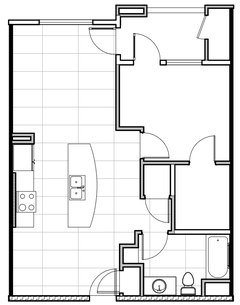

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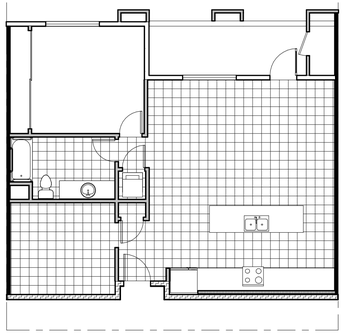

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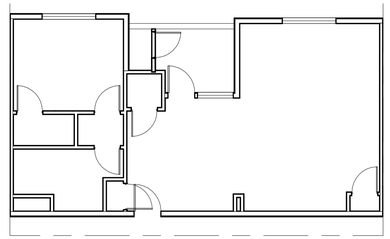

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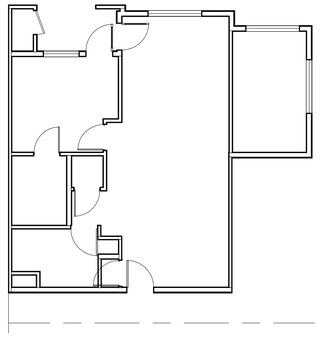

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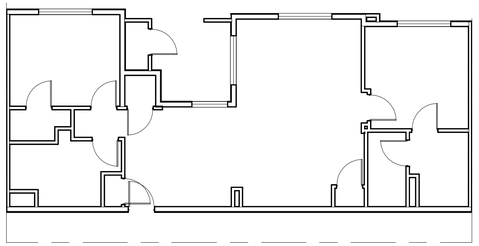

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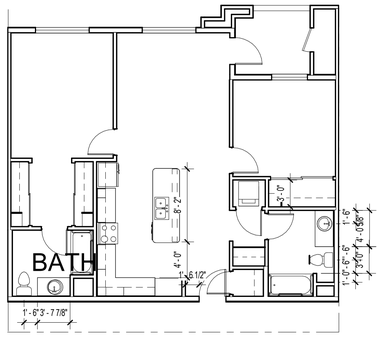

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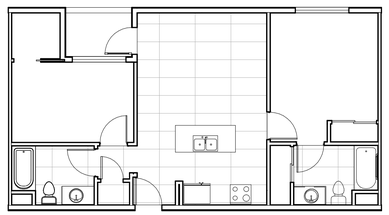

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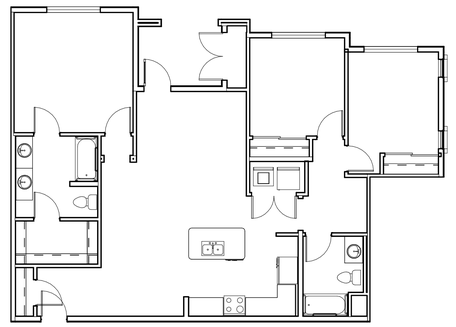

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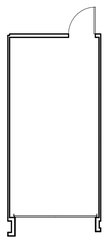

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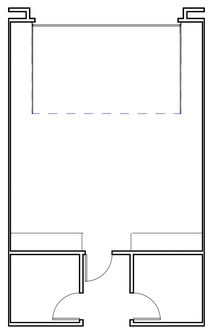

G2

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WESTGROVE 9.5 APARTMENTS

LUGONIA AVENUE, REDLANDS, CA 92374

TYPICAL UNIT TYPES FLOOR PLANS

SCALE: 1/8" = 1'-0"

Revision Number	Revision Date	Revision Description

PROJECT NO.: 1809

A-04.2

12/11/2018

Appendix B

CalEEMod Results and GHG Mobile Emissions Calculation Sheet

18-06390_West_Grove

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	162.00	Space	0.00	64,800.00	0
Parking Lot	117.00	Space	0.00	46,800.00	0
City Park	2.27	Acre	2.27	98,846.00	0
Recreational Swimming Pool	3.90	1000sqft	0.00	3,900.00	0
Apartments Mid Rise	282.00	Dwelling Unit	7.23	360,379.00	807

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site is approximately 9.5 acres. - garage units assumed to be part of the proposed apartments, while the 142 carport spaces and 20 lift were listed as "enclosed parking structures" and the 117 open and ADA spaces were considered parking lot

Construction Phase - Applicant provided construction schedule

Trips and VMT -

Grading - Applicant provided information

Woodstoves - SCAQMD Rule 445

Energy Use - T24 Electricity reduced by 25% and lighting reduced by 75%

Water And Wastewater - indoor water reduced by 20% Part 11 CalGreen

Solid Waste - solid waste reduced by 25% per AB 341

Energy Mitigation - 35

Water Mitigation -

Vehicle Trips - Source: Ganddini 2019; city park used as proxy for landscape space and pool would be accessible to residents

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tblLandUse	LotAcreage	1.05	0.00
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0258	0.2916	0.1380	3.2000e-004	0.1553	0.0135	0.1688	0.0658	0.0124	0.0783	0.0000	29.5385	29.5385	6.9200e-003	0.0000	29.7115
2020	0.7473	4.5179	3.7797	0.0113	0.6264	0.1619	0.7883	0.2163	0.1517	0.3679	0.0000	1,038.3188	1,038.3188	0.1203	0.0000	1,041.3259
2021	1.1135	1.4124	1.7397	4.3400e-003	0.2132	0.0603	0.2735	0.0571	0.0569	0.1140	0.0000	390.4891	390.4891	0.0437	0.0000	391.5826
Maximum	**1.1135**	**4.5179**	**3.7797**	**0.0113**	**0.6264**	**0.1619**	**0.7883**	**0.2163**	**0.1517**	**0.3679**	**0.0000**	**1,038.3188**	**1,038.3188**	**0.1203**	**0.0000**	**1,041.3259**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	6.8800e-003	0.1456	0.1452	3.2000e-004	0.0951	5.6200e-003	0.1007	0.0359	5.6200e-003	0.0415	0.0000	29.5384	29.5384	6.9200e-003	0.0000	29.7115
2020	0.5473	3.6716	3.9694	0.0113	0.5259	0.1248	0.6507	0.1629	0.1243	0.2872	0.0000	1,038.3184	1,038.3184	0.1203	0.0000	1,041.3256
2021	1.0384	1.2324	1.8294	4.3400e-003	0.2132	0.0571	0.2702	0.0571	0.0569	0.1140	0.0000	390.4889	390.4889	0.0437	0.0000	391.5824
Maximum	**1.0384**	**3.6716**	**3.9694**	**0.0113**	**0.5259**	**0.1248**	**0.6507**	**0.1629**	**0.1243**	**0.2872**	**0.0000**	**1,038.3184**	**1,038.3184**	**0.1203**	**0.0000**	**1,041.3256**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.58**	**18.84**	**-5.07**	**0.00**	**16.16**	**20.45**	**16.98**	**24.57**	**15.42**	**20.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**12-16-2019**	**3-15-2020**	1.9695	1.4645
2	**3-16-2020**	**6-15-2020**	1.0394	0.8213
3	**6-16-2020**	**9-15-2020**	1.0045	0.7940
4	**9-16-2020**	**12-15-2020**	1.1945	0.9809
5	**12-16-2020**	**3-15-2021**	1.4938	1.3284
6	**3-16-2021**	**6-15-2021**	1.2923	1.1654
		Highest	1.9695	1.4645

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5538	0.0833	2.9361	4.7000e-004		0.0201	0.0201		0.0201	0.0201	0.0000	62.3184	62.3184	5.7000e-003	1.0600e-003	62.7755
Energy	0.0225	0.1922	0.0818	1.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	615.5120	615.5120	0.0205	7.4400e-003	618.2405
Mobile	0.4491	2.4677	6.1669	0.0234	1.9910	0.0187	2.0097	0.5335	0.0175	0.5509	0.0000	2,164.6437	2,164.6437	0.1027	0.0000	2,167.2115
Waste						0.0000	0.0000		0.0000	0.0000	23.1633	0.0000	23.1633	1.3689	0.0000	57.3861
Water						0.0000	0.0000		0.0000	0.0000	4.7364	113.0167	117.7531	0.4911	0.0125	133.7423
Total	**2.0254**	**2.7433**	**9.1848**	**0.0251**	**1.9910**	**0.0544**	**2.0454**	**0.5335**	**0.0531**	**0.5866**	**27.8997**	**2,955.4907**	**2,983.3905**	**1.9890**	**0.0210**	**3,039.3560**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5538	0.0833	2.9361	4.7000e-004		0.0201	0.0201		0.0201	0.0201	0.0000	62.3184	62.3184	5.7000e-003	1.0600e-003	62.7755
Energy	0.0225	0.1922	0.0818	1.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	605.9736	605.9736	0.0201	7.3600e-003	608.6680
Mobile	0.4052	2.1498	5.0573	0.0186	1.5572	0.0150	1.5722	0.4172	0.0140	0.4312	0.0000	1,718.8209	1,718.8209	0.0844	0.0000	1,720.9305
Waste						0.0000	0.0000		0.0000	0.0000	23.1633	0.0000	23.1633	1.3689	0.0000	57.3861
Water						0.0000	0.0000		0.0000	0.0000	3.7891	100.6289	104.4181	0.3933	0.0101	117.2460
Total	**1.9815**	**2.4253**	**8.0752**	**0.0203**	**1.5572**	**0.0507**	**1.6078**	**0.4172**	**0.0496**	**0.4669**	**26.9524**	**2,487.7418**	**2,514.6942**	**1.8724**	**0.0185**	**2,567.0060**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.17**	**11.59**	**12.08**	**19.22**	**21.79**	**6.84**	**21.39**	**21.79**	**6.55**	**20.41**	**3.40**	**15.83**	**15.71**	**5.86**	**11.84**	**15.54**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/16/2019	12/27/2019	5	10	
2	Grading	Grading	12/28/2019	3/20/2020	5	60	
3	Building Construction	Building Construction	3/23/2020	5/14/2021	5	300	
4	Architectural Coating	Architectural Coating	11/16/2020	6/11/2021	5	150	
5	Paving	Paving	5/17/2021	6/11/2021	5	20	

Acres of Grading (Site Preparation Phase): 9.5

Acres of Grading (Grading Phase): 9.5

Acres of Paving: 0

Residential Indoor: 729,767; Residential Outdoor: 243,256; Non-Residential Indoor: 12,876; Non-Residential Outdoor: 4,292; Striped Parking Area: 6,696 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	6,825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	293.00	65.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	59.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0954	0.0000	0.0954	0.0502	0.0000	0.0502	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0954**	**0.0120**	**0.1073**	**0.0502**	**0.0110**	**0.0612**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.5000e-004	3.7600e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9182	0.9182	3.0000e-005	0.0000	0.9189
Total	**4.3000e-004**	**3.5000e-004**	**3.7600e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9182**	**0.9182**	**3.0000e-005**	**0.0000**	**0.9189**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0429	0.0000	0.0429	0.0226	0.0000	0.0226	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6600e-003	0.0953	0.1148	1.9000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**4.6600e-003**	**0.0953**	**0.1148**	**1.9000e-004**	**0.0429**	**4.7300e-003**	**0.0477**	**0.0226**	**4.7300e-003**	**0.0273**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.5000e-004	3.7600e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9182	0.9182	3.0000e-005	0.0000	0.9189
Total	**4.3000e-004**	**3.5000e-004**	**3.7600e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.9182**	**0.9182**	**3.0000e-005**	**0.0000**	**0.9189**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	4.3200e-003	0.0000	4.3200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5800e-003	0.0284	0.0163	3.0000e-005		1.4000e-003	1.4000e-003		1.2900e-003	1.2900e-003	0.0000	2.6642	2.6642	8.4000e-004	0.0000	2.6853
Total	**2.5800e-003**	**0.0284**	**0.0163**	**3.0000e-005**	**0.0142**	**1.4000e-003**	**0.0156**	**4.3200e-003**	**1.2900e-003**	**5.6100e-003**	**0.0000**	**2.6642**	**2.6642**	**8.4000e-004**	**0.0000**	**2.6853**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.9000e-004	0.0350	6.9900e-003	9.0000e-005	0.0446	1.3000e-004	0.0448	0.0110	1.2000e-004	0.0111	0.0000	8.7186	8.7186	6.4000e-004	0.0000	8.7346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	6.0000e-005	6.3000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1530	0.1530	0.0000	0.0000	0.1532
Total	**1.0600e-003**	**0.0351**	**7.6200e-003**	**9.0000e-005**	**0.0448**	**1.3000e-004**	**0.0449**	**0.0111**	**1.2000e-004**	**0.0112**	**0.0000**	**8.8717**	**8.8717**	**6.4000e-004**	**0.0000**	**8.8878**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3700e-003	0.0000	6.3700e-003	1.9400e-003	0.0000	1.9400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3000e-004	0.0148	0.0190	3.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	2.6642	2.6642	8.4000e-004	0.0000	2.6853
Total	**7.3000e-004**	**0.0148**	**0.0190**	**3.0000e-005**	**6.3700e-003**	**7.6000e-004**	**7.1300e-003**	**1.9400e-003**	**7.6000e-004**	**2.7000e-003**	**0.0000**	**2.6642**	**2.6642**	**8.4000e-004**	**0.0000**	**2.6853**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.9000e-004	0.0350	6.9900e-003	9.0000e-005	0.0446	1.3000e-004	0.0448	0.0110	1.2000e-004	0.0111	0.0000	8.7186	8.7186	6.4000e-004	0.0000	8.7346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	6.0000e-005	6.3000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1530	0.1530	0.0000	0.0000	0.1532
Total	**1.0600e-003**	**0.0351**	**7.6200e-003**	**9.0000e-005**	**0.0448**	**1.3000e-004**	**0.0449**	**0.0111**	**1.2000e-004**	**0.0112**	**0.0000**	**8.8717**	**8.8717**	**6.4000e-004**	**0.0000**	**8.8878**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1828	0.0000	0.1828	0.0970	0.0000	0.0970	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0704	0.7652	0.4655	8.6000e-004		0.0369	0.0369		0.0340	0.0340	0.0000	75.5704	75.5704	0.0244	0.0000	76.1814
Total	**0.0704**	**0.7652**	**0.4655**	**8.6000e-004**	**0.1828**	**0.0369**	**0.2197**	**0.0970**	**0.0340**	**0.1310**	**0.0000**	**75.5704**	**75.5704**	**0.0244**	**0.0000**	**76.1814**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0266	0.9488	0.1968	2.5400e-003	0.0582	2.9900e-003	0.0612	0.0159	2.8600e-003	0.0188	0.0000	250.2862	250.2862	0.0181	0.0000	250.7395
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9400e-003	1.4900e-003	0.0165	5.0000e-005	4.7700e-003	4.0000e-005	4.8100e-003	1.2700e-003	3.0000e-005	1.3000e-003	0.0000	4.3005	4.3005	1.2000e-004	0.0000	4.3036
Total	**0.0285**	**0.9503**	**0.2133**	**2.5900e-003**	**0.0629**	**3.0300e-003**	**0.0660**	**0.0172**	**2.8900e-003**	**0.0201**	**0.0000**	**254.5868**	**254.5868**	**0.0183**	**0.0000**	**255.0432**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0822	0.0000	0.0822	0.0437	0.0000	0.0437	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0211	0.4304	0.5507	8.6000e-004		0.0219	0.0219		0.0219	0.0219	0.0000	75.5703	75.5703	0.0244	0.0000	76.1813
Total	**0.0211**	**0.4304**	**0.5507**	**8.6000e-004**	**0.0822**	**0.0219**	**0.1042**	**0.0437**	**0.0219**	**0.0656**	**0.0000**	**75.5703**	**75.5703**	**0.0244**	**0.0000**	**76.1813**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0266	0.9488	0.1968	2.5400e-003	0.0582	2.9900e-003	0.0612	0.0159	2.8600e-003	0.0188	0.0000	250.2862	250.2862	0.0181	0.0000	250.7395
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9400e-003	1.4900e-003	0.0165	5.0000e-005	4.7700e-003	4.0000e-005	4.8100e-003	1.2700e-003	3.0000e-005	1.3000e-003	0.0000	4.3005	4.3005	1.2000e-004	0.0000	4.3036
Total	**0.0285**	**0.9503**	**0.2133**	**2.5900e-003**	**0.0629**	**3.0300e-003**	**0.0660**	**0.0172**	**2.8900e-003**	**0.0201**	**0.0000**	**254.5868**	**254.5868**	**0.0183**	**0.0000**	**255.0432**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2162	1.9570	1.7186	2.7500e-003		0.1139	0.1139		0.1071	0.1071	0.0000	236.2422	236.2422	0.0576	0.0000	237.6831
Total	**0.2162**	**1.9570**	**1.7186**	**2.7500e-003**		**0.1139**	**0.1139**		**0.1071**	**0.1071**	**0.0000**	**236.2422**	**236.2422**	**0.0576**	**0.0000**	**237.6831**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0225	0.7109	0.1793	1.6700e-003	0.0418	3.4800e-003	0.0453	0.0121	3.3300e-003	0.0154	0.0000	162.2012	162.2012	0.0108	0.0000	162.4718
Worker	0.1330	0.1024	1.1338	3.2700e-003	0.3279	2.5500e-003	0.3304	0.0871	2.3500e-003	0.0894	0.0000	295.4618	295.4618	8.5100e-003	0.0000	295.6745
Total	**0.1555**	**0.8133**	**1.3131**	**4.9400e-003**	**0.3697**	**6.0300e-003**	**0.3757**	**0.0991**	**5.6800e-003**	**0.1048**	**0.0000**	**457.6630**	**457.6630**	**0.0193**	**0.0000**	**458.1463**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0687	1.4511	1.8231	2.7500e-003		0.0922	0.0922		0.0922	0.0922	0.0000	236.2419	236.2419	0.0576	0.0000	237.6828
Total	**0.0687**	**1.4511**	**1.8231**	**2.7500e-003**		**0.0922**	**0.0922**		**0.0922**	**0.0922**	**0.0000**	**236.2419**	**236.2419**	**0.0576**	**0.0000**	**237.6828**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0225	0.7109	0.1793	1.6700e-003	0.0418	3.4800e-003	0.0453	0.0121	3.3300e-003	0.0154	0.0000	162.2012	162.2012	0.0108	0.0000	162.4718
Worker	0.1330	0.1024	1.1338	3.2700e-003	0.3279	2.5500e-003	0.3304	0.0871	2.3500e-003	0.0894	0.0000	295.4618	295.4618	8.5100e-003	0.0000	295.6745
Total	**0.1555**	**0.8133**	**1.3131**	**4.9400e-003**	**0.3697**	**6.0300e-003**	**0.3757**	**0.0991**	**5.6800e-003**	**0.1048**	**0.0000**	**457.6630**	**457.6630**	**0.0193**	**0.0000**	**458.1463**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0912	0.8367	0.7956	1.2900e-003		0.0460	0.0460		0.0433	0.0433	0.0000	111.1859	111.1859	0.0268	0.0000	111.8565
Total	**0.0912**	**0.8367**	**0.7956**	**1.2900e-003**		**0.0460**	**0.0460**		**0.0433**	**0.0433**	**0.0000**	**111.1859**	**111.1859**	**0.0268**	**0.0000**	**111.8565**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9700e-003	0.3035	0.0767	7.8000e-004	0.0197	6.2000e-004	0.0203	5.6700e-003	5.9000e-004	6.2600e-003	0.0000	75.7557	75.7557	4.8800e-003	0.0000	75.8777
Worker	0.0585	0.0434	0.4908	1.4900e-003	0.1543	1.1600e-003	0.1555	0.0410	1.0700e-003	0.0421	0.0000	134.5435	134.5435	3.6200e-003	0.0000	134.6341
Total	**0.0674**	**0.3469**	**0.5675**	**2.2700e-003**	**0.1740**	**1.7800e-003**	**0.1757**	**0.0467**	**1.6600e-003**	**0.0483**	**0.0000**	**210.2992**	**210.2992**	**8.5000e-003**	**0.0000**	**210.5118**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0324	0.6829	0.8579	1.2900e-003		0.0434	0.0434		0.0434	0.0434	0.0000	111.1858	111.1858	0.0268	0.0000	111.8564
Total	**0.0324**	**0.6829**	**0.8579**	**1.2900e-003**		**0.0434**	**0.0434**		**0.0434**	**0.0434**	**0.0000**	**111.1858**	**111.1858**	**0.0268**	**0.0000**	**111.8564**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9700e-003	0.3035	0.0767	7.8000e-004	0.0197	6.2000e-004	0.0203	5.6700e-003	5.9000e-004	6.2600e-003	0.0000	75.7557	75.7557	4.8800e-003	0.0000	75.8777
Worker	0.0585	0.0434	0.4908	1.4900e-003	0.1543	1.1600e-003	0.1555	0.0410	1.0700e-003	0.0421	0.0000	134.5435	134.5435	3.6200e-003	0.0000	134.6341
Total	**0.0674**	**0.3469**	**0.5675**	**2.2700e-003**	**0.1740**	**1.7800e-003**	**0.1757**	**0.0467**	**1.6600e-003**	**0.0483**	**0.0000**	**210.2992**	**210.2992**	**8.5000e-003**	**0.0000**	**210.5118**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2681					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1200e-003	0.0286	0.0311	5.0000e-005		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003	0.0000	4.3405	4.3405	3.4000e-004	0.0000	4.3489
Total	**0.2722**	**0.0286**	**0.0311**	**5.0000e-005**		**1.8900e-003**	**1.8900e-003**		**1.8900e-003**	**1.8900e-003**	**0.0000**	**4.3405**	**4.3405**	**3.4000e-004**	**0.0000**	**4.3489**

3.5 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4600e-003	3.4400e-003	0.0381	1.1000e-004	0.0110	9.0000e-005	0.0111	2.9200e-003	8.0000e-005	3.0000e-003	0.0000	9.9160	9.9160	2.9000e-004	0.0000	9.9231
Total	**4.4600e-003**	**3.4400e-003**	**0.0381**	**1.1000e-004**	**0.0110**	**9.0000e-005**	**0.0111**	**2.9200e-003**	**8.0000e-005**	**3.0000e-003**	**0.0000**	**9.9160**	**9.9160**	**2.9000e-004**	**0.0000**	**9.9231**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2681					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0100e-003	0.0231	0.0312	5.0000e-005		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	4.3405	4.3405	3.4000e-004	0.0000	4.3489
Total	**0.2691**	**0.0231**	**0.0312**	**5.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.6200e-003**	**1.6200e-003**	**0.0000**	**4.3405**	**4.3405**	**3.4000e-004**	**0.0000**	**4.3489**

3.5 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4600e-003	3.4400e-003	0.0381	1.1000e-004	0.0110	9.0000e-005	0.0111	2.9200e-003	8.0000e-005	3.0000e-003	0.0000	9.9160	9.9160	2.9000e-004	0.0000	9.9231
Total	**4.4600e-003**	**3.4400e-003**	**0.0381**	**1.1000e-004**	**0.0110**	**9.0000e-005**	**0.0111**	**2.9200e-003**	**8.0000e-005**	**3.0000e-003**	**0.0000**	**9.9160**	**9.9160**	**2.9000e-004**	**0.0000**	**9.9231**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.0886	0.1054	1.7000e-004		5.4600e-003	5.4600e-003		5.4600e-003	5.4600e-003	0.0000	14.8089	14.8089	1.0200e-003	0.0000	14.8343
Total	**0.9274**	**0.0886**	**0.1054**	**1.7000e-004**		**5.4600e-003**	**5.4600e-003**		**5.4600e-003**	**5.4600e-003**	**0.0000**	**14.8089**	**14.8089**	**1.0200e-003**	**0.0000**	**14.8343**

3.5 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0142	0.0106	0.1194	3.6000e-004	0.0375	2.8000e-004	0.0378	9.9700e-003	2.6000e-004	0.0102	0.0000	32.7366	32.7366	8.8000e-004	0.0000	32.7587
Total	**0.0142**	**0.0106**	**0.1194**	**3.6000e-004**	**0.0375**	**2.8000e-004**	**0.0378**	**9.9700e-003**	**2.6000e-004**	**0.0102**	**0.0000**	**32.7366**	**32.7366**	**8.8000e-004**	**0.0000**	**32.7587**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4500e-003	0.0787	0.1063	1.7000e-004		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	14.8089	14.8089	1.0200e-003	0.0000	14.8343
Total	**0.9181**	**0.0787**	**0.1063**	**1.7000e-004**		**5.5200e-003**	**5.5200e-003**		**5.5200e-003**	**5.5200e-003**	**0.0000**	**14.8089**	**14.8089**	**1.0200e-003**	**0.0000**	**14.8343**

3.5 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0142	0.0106	0.1194	3.6000e-004	0.0375	2.8000e-004	0.0378	9.9700e-003	2.6000e-004	0.0102	0.0000	32.7366	32.7366	8.8000e-004	0.0000	32.7587
Total	**0.0142**	**0.0106**	**0.1194**	**3.6000e-004**	**0.0375**	**2.8000e-004**	**0.0378**	**9.9700e-003**	**2.6000e-004**	**0.0102**	**0.0000**	**32.7366**	**32.7366**	**8.8000e-004**	**0.0000**	**32.7587**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.6000e-004	5.2300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4350	1.4350	4.0000e-005	0.0000	1.4359
Total	**6.2000e-004**	**4.6000e-004**	**5.2300e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4350**	**1.4350**	**4.0000e-005**	**0.0000**	**1.4359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6100e-003	0.1130	0.1730	2.3000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.6100e-003**	**0.1130**	**0.1730**	**2.3000e-004**		**6.0900e-003**	**6.0900e-003**		**6.0900e-003**	**6.0900e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.6000e-004	5.2300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4350	1.4350	4.0000e-005	0.0000	1.4359
Total	**6.2000e-004**	**4.6000e-004**	**5.2300e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4350**	**1.4350**	**4.0000e-005**	**0.0000**	**1.4359**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4052	2.1498	5.0573	0.0186	1.5572	0.0150	1.5722	0.4172	0.0140	0.4312	0.0000	1,718.8209	1,718.8209	0.0844	0.0000	1,720.9305
Unmitigated	0.4491	2.4677	6.1669	0.0234	1.9910	0.0187	2.0097	0.5335	0.0175	0.5509	0.0000	2,164.6437	2,164.6437	0.1027	0.0000	2,167.2115

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,534.08	1,534.08	1534.08	5,242,184	4,099,912
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,534.08	1,534.08	1,534.08	5,242,184	4,099,912

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
City Park	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Enclosed Parking Structure	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Parking Lot	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Recreational Swimming Pool	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	383.3435	383.3435	0.0158	3.2700e-003	384.7149
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	392.8819	392.8819	0.0162	3.3600e-003	394.2874
NaturalGas Mitigated	0.0225	0.1922	0.0818	1.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	222.6301	222.6301	4.2700e-003	4.0800e-003	223.9531
NaturalGas Unmitigated	0.0225	0.1922	0.0818	1.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	222.6301	222.6301	4.2700e-003	4.0800e-003	223.9531

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.17193e+006	0.0225	0.1922	0.0818	1.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	222.6301	222.6301	4.2700e-003	4.0800e-003	223.9531
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0225**	**0.1922**	**0.0818**	**1.2300e-003**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**222.6301**	**222.6301**	**4.2700e-003**	**4.0800e-003**	**223.9531**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.17193e+006	0.0225	0.1922	0.0818	1.2300e-003		0.0155	0.0155		0.0155	0.0155	0.0000	222.6301	222.6301	4.2700e-003	4.0800e-003	223.9531
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0225**	**0.1922**	**0.0818**	**1.2300e-003**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**222.6301**	**222.6301**	**4.2700e-003**	**4.0800e-003**	**223.9531**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.07251e+006	341.7240	0.0141	2.9200e-003	342.9466
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	148392	47.2809	1.9500e-003	4.0000e-004	47.4500
Parking Lot	12168	3.8770	1.6000e-004	3.0000e-005	3.8909
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**392.8819**	**0.0162**	**3.3500e-003**	**394.2875**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.04257e+006	332.1856	0.0137	2.8400e-003	333.3740
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	148392	47.2809	1.9500e-003	4.0000e-004	47.4500
Parking Lot	12168	3.8770	1.6000e-004	3.0000e-005	3.8909
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**383.3435**	**0.0158**	**3.2700e-003**	**384.7149**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5538	0.0833	2.9361	4.7000e-004		0.0201	0.0201		0.0201	0.0201	0.0000	62.3184	62.3184	5.7000e-003	1.0600e-003	62.7755
Unmitigated	1.5538	0.0833	2.9361	4.7000e-004		0.0201	0.0201		0.0201	0.0201	0.0000	62.3184	62.3184	5.7000e-003	1.0600e-003	62.7755

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.8200e-003	0.0497	0.0212	3.2000e-004		4.0200e-003	4.0200e-003		4.0200e-003	4.0200e-003	0.0000	57.5609	57.5609	1.1000e-003	1.0600e-003	57.9029
Landscaping	0.0883	0.0336	2.9150	1.5000e-004		0.0161	0.0161		0.0161	0.0161	0.0000	4.7575	4.7575	4.6000e-003	0.0000	4.8726
Total	**1.5538**	**0.0833**	**2.9361**	**4.7000e-004**		**0.0201**	**0.0201**		**0.0201**	**0.0201**	**0.0000**	**62.3184**	**62.3184**	**5.7000e-003**	**1.0600e-003**	**62.7755**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.8200e-003	0.0497	0.0212	3.2000e-004		4.0200e-003	4.0200e-003		4.0200e-003	4.0200e-003	0.0000	57.5609	57.5609	1.1000e-003	1.0600e-003	57.9029
Landscaping	0.0883	0.0336	2.9150	1.5000e-004		0.0161	0.0161		0.0161	0.0161	0.0000	4.7575	4.7575	4.6000e-003	0.0000	4.8726
Total	**1.5538**	**0.0833**	**2.9361**	**4.7000e-004**		**0.0201**	**0.0201**		**0.0201**	**0.0201**	**0.0000**	**62.3184**	**62.3184**	**5.7000e-003**	**1.0600e-003**	**62.7755**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	104.4181	0.3933	0.0101	117.2460
Unmitigated	117.7531	0.4911	0.0125	133.7423

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.6987 / 11.5833	106.6483	0.4832	0.0122	122.3573
City Park	0 / 2.70466	9.5742	4.0000e-004	8.0000e-005	9.6084
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.230658 / 0.141371	1.5306	7.5800e-003	1.9000e-004	1.7766
Total		**117.7531**	**0.4912**	**0.0125**	**133.7423**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	11.759 / 11.5833	93.5193	0.3869	9.8100e-003	106.1159
City Park	0 / 2.70466	9.5742	4.0000e-004	8.0000e-005	9.6084
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.184527 / 0.141371	1.3245	6.0700e-003	1.5000e-004	1.5217
Total		**104.4181**	**0.3933**	**0.0100**	**117.2460**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	23.1633	1.3689	0.0000	57.3861
Unmitigated	23.1633	1.3689	0.0000	57.3861

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	97.29	19.7490	1.1671	0.0000	48.9273
City Park	0.15	0.0305	1.8000e-003	0.0000	0.0754
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	16.67	3.3839	0.2000	0.0000	8.3834
Total		**23.1633**	**1.3689**	**0.0000**	**57.3861**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	97.29	19.7490	1.1671	0.0000	48.9273
City Park	0.15	0.0305	1.8000e-003	0.0000	0.0754
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	16.67	3.3839	0.2000	0.0000	8.3834
Total		**23.1633**	**1.3689**	**0.0000**	**57.3861**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

18-06390_West_Grove

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	162.00	Space	0.00	64,800.00	0
Parking Lot	117.00	Space	0.00	46,800.00	0
City Park	2.27	Acre	2.27	98,846.00	0
Recreational Swimming Pool	3.90	1000sqft	0.00	3,900.00	0
Apartments Mid Rise	282.00	Dwelling Unit	7.23	360,379.00	807

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site is approximately 9.5 acres. - garage units assumed to be part of the proposed apartments, while the 142 carport spaces and 20 lift were listed as "enclosed parking structures" and the 117 open and ADA spaces were considered parking lot

Construction Phase - Applicant provided construction schedule

Trips and VMT -

Grading - Applicant provided information

Woodstoves - SCAQMD Rule 445

Energy Use - T24 Electricity reduced by 25% and lighting reduced by 75%

Water And Wastewater - indoor water reduced by 20% Part 11 CalGreen

Solid Waste - solid waste reduced by 25% per AB 341

Energy Mitigation - 35

Water Mitigation -

Vehicle Trips - Source: Ganddini 2019; city park used as proxy for landscape space and pool would be accessible to residents

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	150.00
tblConstructionPhase	NumDays	230.00	300.00
tblConstructionPhase	NumDays	20.00	60.00
tblEnergyUse	LightingElect	741.44	556.08
tblEnergyUse	LightingElect	1.75	1.31
tblEnergyUse	LightingElect	0.35	0.26
tblEnergyUse	T24E	772.17	193.04
tblEnergyUse	T24E	3.92	0.98
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	14.10	0.00
tblGrading	AcresOfGrading	30.00	9.50
tblGrading	AcresOfGrading	0.00	9.50
tblGrading	MaterialExported	0.00	54,600.00
tblLandUse	LandUseSquareFeet	98,881.20	98,846.00
tblLandUse	LandUseSquareFeet	282,000.00	360,379.00
tblLandUse	LotAcreage	1.46	0.00

tblLandUse	LotAcreage	1.05	0.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	7.42	7.23
tblSolidWaste	SolidWasteGenerationRate	129.72	97.29
tblSolidWaste	SolidWasteGenerationRate	0.20	0.15
tblSolidWaste	SolidWasteGenerationRate	22.23	16.67
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	5.86	5.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	33.82	0.00
tblWater	IndoorWaterUseRate	18,373,435.23	14,698,748.18
tblWoodstoves	NumberCatalytic	14.10	0.00
tblWoodstoves	NumberNoncatalytic	14.10	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4224	62.2675	23.7405	0.1208	52.0605	2.3919	53.5858	14.6379	2.2006	16.0458	0.0000	12,792.8452	12,792.8452	1.6289	0.0000	12,833.5677
2020	19.9273	58.1230	34.6920	0.1197	8.4992	1.3773	9.8765	3.9455	1.2709	5.2164	0.0000	12,626.3592	12,626.3592	1.6118	0.0000	12,666.6535
2021	19.5464	26.1447	33.1207	0.0854	4.3505	1.0945	5.4450	1.1632	1.0344	2.1975	0.0000	8,490.9283	8,490.9283	0.8492	0.0000	8,512.1575
Maximum	**19.9273**	**62.2675**	**34.6920**	**0.1208**	**52.0605**	**2.3919**	**53.5858**	**14.6379**	**2.2006**	**16.0458**	**0.0000**	**12,792.8452**	**12,792.8452**	**1.6289**	**0.0000**	**12,833.5677**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.7786	48.7592	26.4378	0.1208	48.5994	0.9477	49.4829	12.7987	0.9476	13.6766	0.0000	12,792.8452	12,792.8452	1.6289	0.0000	12,833.5677
2020	18.2986	46.5769	35.7182	0.1197	5.0381	1.0625	5.8975	2.1064	1.0587	2.9612	0.0000	12,626.3592	12,626.3592	1.6118	0.0000	12,666.6535
2021	18.1600	22.7688	34.4342	0.0854	4.3505	1.0405	5.3909	1.1632	1.0376	2.2008	0.0000	8,490.9283	8,490.9283	0.8492	0.0000	8,512.1575
Maximum	**18.2986**	**48.7592**	**35.7182**	**0.1208**	**48.5994**	**1.0625**	**49.4829**	**12.7987**	**1.0587**	**13.6766**	**0.0000**	**12,792.8452**	**12,792.8452**	**1.6289**	**0.0000**	**12,833.5677**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	12.89	19.40	-5.50	0.00	10.66	37.28	11.81	18.63	32.44	19.70	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328
Energy	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
Mobile	2.6347	13.0268	35.5592	0.1339	11.1417	0.1027	11.2444	2.9807	0.0958	3.0766		13,629.8493	13,629.8493	0.6269		13,645.5226
Total	**11.9276**	**18.3252**	**61.0190**	**0.1673**	**11.1417**	**0.6382**	**11.7798**	**2.9807**	**0.6313**	**3.6120**	**0.0000**	**20,092.5031**	**20,092.5031**	**0.7906**	**0.1177**	**20,147.3459**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328
Energy	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
Mobile	2.3887	11.4060	28.9257	0.1063	8.7139	0.0823	8.7962	2.3312	0.0767	2.4079		10,823.0969	10,823.0969	0.5133		10,835.9282
Total	**11.6816**	**16.7045**	**54.3855**	**0.1396**	**8.7139**	**0.6177**	**9.3316**	**2.3312**	**0.6121**	**2.9434**	**0.0000**	**17,285.7507**	**17,285.7507**	**0.6769**	**0.1177**	**17,337.7515**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.06**	**8.84**	**10.87**	**16.52**	**21.79**	**3.21**	**20.78**	**21.79**	**3.03**	**18.51**	**0.00**	**13.97**	**13.97**	**14.38**	**0.00**	**13.95**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/16/2019	12/27/2019	5	10	
2	Grading	Grading	12/28/2019	3/20/2020	5	60	
3	Building Construction	Building Construction	3/23/2020	5/14/2021	5	300	
4	Architectural Coating	Architectural Coating	11/16/2020	6/11/2021	5	150	
5	Paving	Paving	5/17/2021	6/11/2021	5	20	

Acres of Grading (Site Preparation Phase): 9.5

Acres of Grading (Grading Phase): 9.5

Acres of Paving: 0

Residential Indoor: 729,767; Residential Outdoor: 243,256; Non-Residential Indoor: 12,876; Non-Residential Outdoor: 4,292; Striped Parking Area: 6,696 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	6,825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	293.00	65.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	59.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.0737	0.0000	19.0737	10.0395	0.0000	10.0395			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**19.0737**	**2.3904**	**21.4641**	**10.0395**	**2.1991**	**12.2386**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0874	0.0612	0.8063	2.1300e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		212.4651	212.4651	6.6600e-003		212.6315
Total	**0.0874**	**0.0612**	**0.8063**	**2.1300e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**212.4651**	**212.4651**	**6.6600e-003**		**212.6315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.5832	0.0000	8.5832	4.5178	0.0000	4.5178			0.0000			0.0000
Off-Road	0.9312	19.0656	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**0.9312**	**19.0656**	**22.9600**	**0.0380**	**8.5832**	**0.9462**	**9.5294**	**4.5178**	**0.9462**	**5.4639**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0874	0.0612	0.8063	2.1300e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		212.4651	212.4651	6.6600e-003		212.6315
Total	**0.0874**	**0.0612**	**0.8063**	**2.1300e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**212.4651**	**212.4651**	**6.6600e-003**		**212.6315**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2929	0.0000	6.2929	3.3439	0.0000	3.3439			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.2929**	**1.3974**	**7.6903**	**3.3439**	**1.2856**	**4.6295**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9794	33.8685	6.7753	0.0893	45.6000	0.1266	45.7266	11.2495	0.1211	11.3706		9,678.9842	9,678.9842	0.6942		9,696.3386
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0510	0.6719	1.7800e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		177.0542	177.0542	5.5500e-003		177.1930
Total	**1.0522**	**33.9195**	**7.4472**	**0.0911**	**45.7676**	**0.1279**	**45.8955**	**11.2939**	**0.1223**	**11.4162**		**9,856.0385**	**9,856.0385**	**0.6997**		**9,873.5315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8318	0.0000	2.8318	1.5048	0.0000	1.5048			0.0000			0.0000
Off-Road	0.7263	14.8397	18.9906	0.0297		0.7555	0.7555		0.7555	0.7555	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**0.7263**	**14.8397**	**18.9906**	**0.0297**	**2.8318**	**0.7555**	**3.5874**	**1.5048**	**0.7555**	**2.2603**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9794	33.8685	6.7753	0.0893	45.6000	0.1266	45.7266	11.2495	0.1211	11.3706		9,678.9842	9,678.9842	0.6942		9,696.3386
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0510	0.6719	1.7800e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		177.0542	177.0542	5.5500e-003		177.1930
Total	**1.0522**	**33.9195**	**7.4472**	**0.0911**	**45.7676**	**0.1279**	**45.8955**	**11.2939**	**0.1223**	**11.4162**		**9,856.0385**	**9,856.0385**	**0.6997**		**9,873.5315**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2929	0.0000	6.2929	3.3439	0.0000	3.3439			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2929**	**1.2734**	**7.5663**	**3.3439**	**1.1716**	**4.5155**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9054	31.6917	6.5902	0.0883	2.0386	0.1026	2.1412	0.5571	0.0981	0.6553		9,582.2986	9,582.2986	0.6778		9,599.2438
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0673	0.0455	0.6114	1.7200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		171.5755	171.5755	4.9400e-003		171.6991
Total	**0.9727**	**31.7372**	**7.2016**	**0.0900**	**2.2063**	**0.1038**	**2.3101**	**0.6016**	**0.0993**	**0.7009**		**9,753.8740**	**9,753.8740**	**0.6828**		**9,770.9429**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8318	0.0000	2.8318	1.5048	0.0000	1.5048			0.0000			0.0000
Off-Road	0.7263	14.8397	18.9906	0.0297		0.7555	0.7555		0.7555	0.7555	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**0.7263**	**14.8397**	**18.9906**	**0.0297**	**2.8318**	**0.7555**	**3.5874**	**1.5048**	**0.7555**	**2.2603**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9054	31.6917	6.5902	0.0883	2.0386	0.1026	2.1412	0.5571	0.0981	0.6553		9,582.2986	9,582.2986	0.6778		9,599.2438
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0673	0.0455	0.6114	1.7200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		171.5755	171.5755	4.9400e-003		171.6991
Total	**0.9727**	**31.7372**	**7.2016**	**0.0900**	**2.2063**	**0.1038**	**2.3101**	**0.6016**	**0.0993**	**0.7009**		**9,753.8740**	**9,753.8740**	**0.6828**		**9,770.9429**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2158	6.8459	1.6653	0.0166	0.4159	0.0339	0.4498	0.1197	0.0324	0.1522		1,773.1435	1,773.1435	0.1135		1,775.9808
Worker	1.3143	0.8885	11.9421	0.0337	3.2751	0.0250	3.3000	0.8686	0.0230	0.8916		3,351.4404	3,351.4404	0.0966		3,353.8550
Total	**1.5301**	**7.7344**	**13.6073**	**0.0502**	**3.6910**	**0.0589**	**3.7498**	**0.9883**	**0.0554**	**1.0437**		**5,124.5840**	**5,124.5840**	**0.2101**		**5,129.8359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2158	6.8459	1.6653	0.0166	0.4159	0.0339	0.4498	0.1197	0.0324	0.1522		1,773.1435	1,773.1435	0.1135		1,775.9808
Worker	1.3143	0.8885	11.9421	0.0337	3.2751	0.0250	3.3000	0.8686	0.0230	0.8916		3,351.4404	3,351.4404	0.0966		3,353.8550
Total	**1.5301**	**7.7344**	**13.6073**	**0.0502**	**3.6910**	**0.0589**	**3.7498**	**0.9883**	**0.0554**	**1.0437**		**5,124.5840**	**5,124.5840**	**0.2101**		**5,129.8359**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1829	6.2249	1.5115	0.0164	0.4159	0.0127	0.4286	0.1197	0.0122	0.1319		1,759.8344	1,759.8344	0.1088		1,762.5550
Worker	1.2262	0.7998	11.0012	0.0326	3.2751	0.0242	3.2993	0.8686	0.0223	0.8909		3,243.2120	3,243.2120	0.0874		3,245.3973
Total	**1.4091**	**7.0247**	**12.5127**	**0.0490**	**3.6910**	**0.0370**	**3.7279**	**0.9883**	**0.0345**	**1.0228**		**5,003.0463**	**5,003.0463**	**0.1962**		**5,007.9523**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1829	6.2249	1.5115	0.0164	0.4159	0.0127	0.4286	0.1197	0.0122	0.1319		1,759.8344	1,759.8344	0.1088		1,762.5550
Worker	1.2262	0.7998	11.0012	0.0326	3.2751	0.0242	3.2993	0.8686	0.0223	0.8909		3,243.2120	3,243.2120	0.0874		3,245.3973
Total	**1.4091**	**7.0247**	**12.5127**	**0.0490**	**3.6910**	**0.0370**	**3.7279**	**0.9883**	**0.0345**	**1.0228**		**5,003.0463**	**5,003.0463**	**0.1962**		**5,007.9523**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**16.0128**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.5 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2647	0.1789	2.4047	6.7800e-003	0.6595	5.0300e-003	0.6645	0.1749	4.6300e-003	0.1795		674.8634	674.8634	0.0195		675.3497
Total	**0.2647**	**0.1789**	**2.4047**	**6.7800e-003**	**0.6595**	**5.0300e-003**	**0.6645**	**0.1749**	**4.6300e-003**	**0.1795**		**674.8634**	**674.8634**	**0.0195**		**675.3497**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**15.8300**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.5 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2647	0.1789	2.4047	6.7800e-003	0.6595	5.0300e-003	0.6645	0.1749	4.6300e-003	0.1795		674.8634	674.8634	0.0195		675.3497
Total	**0.2647**	**0.1789**	**2.4047**	**6.7800e-003**	**0.6595**	**5.0300e-003**	**0.6645**	**0.1749**	**4.6300e-003**	**0.1795**		**674.8634**	**674.8634**	**0.0195**		**675.3497**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**15.9895**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.5 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2469	0.1611	2.2153	6.5500e-003	0.6595	4.8800e-003	0.6644	0.1749	4.5000e-003	0.1794		653.0700	653.0700	0.0176		653.5100
Total	**0.2469**	**0.1611**	**2.2153**	**6.5500e-003**	**0.6595**	**4.8800e-003**	**0.6644**	**0.1749**	**4.5000e-003**	**0.1794**		**653.0700**	**653.0700**	**0.0176**		**653.5100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**15.8300**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.5 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2469	0.1611	2.2153	6.5500e-003	0.6595	4.8800e-003	0.6644	0.1749	4.5000e-003	0.1794		653.0700	653.0700	0.0176		653.5100
Total	**0.2469**	**0.1611**	**2.2153**	**6.5500e-003**	**0.6595**	**4.8800e-003**	**0.6644**	**0.1749**	**4.5000e-003**	**0.1794**		**653.0700**	**653.0700**	**0.0176**		**653.5100**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.6093	0.6093		0.6093	0.6093	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5609**	**11.2952**	**17.2957**	**0.0228**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.3887	11.4060	28.9257	0.1063	8.7139	0.0823	8.7962	2.3312	0.0767	2.4079		10,823.0969	10,823.0969	0.5133		10,835.9282
Unmitigated	2.6347	13.0268	35.5592	0.1339	11.1417	0.1027	11.2444	2.9807	0.0958	3.0766		13,629.8493	13,629.8493	0.6269		13,645.5226

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,534.08	1,534.08	1534.08	5,242,184	4,099,912
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,534.08	1,534.08	1,534.08	5,242,184	4,099,912

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
City Park	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Enclosed Parking Structure	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Parking Lot	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Recreational Swimming Pool	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
NaturalGas Unmitigated	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	11429.9	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1233**	**1.0534**	**0.4482**	**6.7200e-003**		**0.0852**	**0.0852**		**0.0852**	**0.0852**		**1,344.6996**	**1,344.6996**	**0.0258**	**0.0247**	**1,352.6905**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	11.4299	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1233**	**1.0534**	**0.4482**	**6.7200e-003**		**0.0852**	**0.0852**		**0.0852**	**0.0852**		**1,344.6996**	**1,344.6996**	**0.0258**	**0.0247**	**1,352.6905**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328
Unmitigated	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.3501					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4653	3.9762	1.6920	0.0254		0.3215	0.3215		0.3215	0.3215	0.0000	5,076.0000	5,076.0000	0.0973	0.0931	5,106.1641
Landscaping	0.7062	0.2689	23.3196	1.2300e-003		0.1288	0.1288		0.1288	0.1288		41.9542	41.9542	0.0406		42.9687
Total	**9.1697**	**4.2451**	**25.0116**	**0.0266**		**0.4503**	**0.4503**		**0.4503**	**0.4503**	**0.0000**	**5,117.9542**	**5,117.9542**	**0.1379**	**0.0931**	**5,149.1328**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.3501					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4653	3.9762	1.6920	0.0254		0.3215	0.3215		0.3215	0.3215	0.0000	5,076.0000	5,076.0000	0.0973	0.0931	5,106.1641
Landscaping	0.7062	0.2689	23.3196	1.2300e-003		0.1288	0.1288		0.1288	0.1288		41.9542	41.9542	0.0406		42.9687
Total	**9.1697**	**4.2451**	**25.0116**	**0.0266**		**0.4503**	**0.4503**		**0.4503**	**0.4503**	**0.0000**	**5,117.9542**	**5,117.9542**	**0.1379**	**0.0931**	**5,149.1328**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

18-06390_West_Grove

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	162.00	Space	0.00	64,800.00	0
Parking Lot	117.00	Space	0.00	46,800.00	0
City Park	2.27	Acre	2.27	98,846.00	0
Recreational Swimming Pool	3.90	1000sqft	0.00	3,900.00	0
Apartments Mid Rise	282.00	Dwelling Unit	7.23	360,379.00	807

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site is approximately 9.5 acres. - garage units assumed to be part of the proposed apartments, while the 142 carport spaces and 20 lift were listed as "enclosed parking structures" and the 117 open and ADA spaces were considered parking lot

Construction Phase - Applicant provided construction schedule

Trips and VMT -

Grading - Applicant provided information

Woodstoves - SCAQMD Rule 445

Energy Use - T24 Electricity reduced by 25% and lighting reduced by 75%

Water And Wastewater - indoor water reduced by 20% Part 11 CalGreen

Solid Waste - solid waste reduced by 25% per AB 341

Energy Mitigation - 35

Water Mitigation -

Vehicle Trips - Source: Ganddini 2019; city park used as proxy for landscape space and pool would be accessible to residents

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	150.00
tblConstructionPhase	NumDays	230.00	300.00
tblConstructionPhase	NumDays	20.00	60.00
tblEnergyUse	LightingElect	741.44	556.08
tblEnergyUse	LightingElect	1.75	1.31
tblEnergyUse	LightingElect	0.35	0.26
tblEnergyUse	T24E	772.17	193.04
tblEnergyUse	T24E	3.92	0.98
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	14.10	0.00
tblGrading	AcresOfGrading	30.00	9.50
tblGrading	AcresOfGrading	0.00	9.50
tblGrading	MaterialExported	0.00	54,600.00
tblLandUse	LandUseSquareFeet	98,881.20	98,846.00
tblLandUse	LandUseSquareFeet	282,000.00	360,379.00
tblLandUse	LotAcreage	1.46	0.00

tblLandUse	LotAcreage	1.05	0.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	7.42	7.23
tblSolidWaste	SolidWasteGenerationRate	129.72	97.29
tblSolidWaste	SolidWasteGenerationRate	0.20	0.15
tblSolidWaste	SolidWasteGenerationRate	22.23	16.67
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	5.86	5.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	33.82	0.00
tblWater	IndoorWaterUseRate	18,373,435.23	14,698,748.18
tblWoodstoves	NumberCatalytic	14.10	0.00
tblWoodstoves	NumberNoncatalytic	14.10	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.4310	62.7332	24.1757	0.1192	52.0605	2.3919	53.5882	14.6379	2.2006	16.0480	0.0000	12,619.1305	12,619.1305	1.6565	0.0000	12,660.5435
2020	20.0952	58.5431	33.5345	0.1181	8.4992	1.3788	9.8780	3.9455	1.2723	5.2179	0.0000	12,452.0565	12,452.0565	1.6376	0.0000	12,492.9953
2021	19.7059	26.2244	32.0362	0.0826	4.3505	1.0949	5.4454	1.1632	1.0347	2.1979	0.0000	8,201.0336	8,201.0336	0.8499	0.0000	8,222.2814
Maximum	**20.0952**	**62.7332**	**33.5345**	**0.1192**	**52.0605**	**2.3919**	**53.5882**	**14.6379**	**2.2006**	**16.0480**	**0.0000**	**12,619.1305**	**12,619.1305**	**1.6565**	**0.0000**	**12,660.5435**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.8120	49.2249	26.8730	0.1192	48.5994	0.9477	49.4853	12.7987	0.9476	13.6788	0.0000	12,619.1305	12,619.1305	1.6565	0.0000	12,660.5435
2020	18.4665	46.9970	34.5607	0.1181	5.0381	1.0631	5.8990	2.1064	1.0592	2.9627	0.0000	12,452.0565	12,452.0565	1.6376	0.0000	12,492.9953
2021	18.3194	22.8485	33.3496	0.0826	4.3505	1.0409	5.3913	1.1632	1.0380	2.2012	0.0000	8,201.0336	8,201.0336	0.8499	0.0000	8,222.2814
Maximum	**18.4665**	**49.2249**	**34.5607**	**0.1192**	**48.5994**	**1.0631**	**49.4853**	**12.7987**	**1.0592**	**13.6788**	**0.0000**	**12,619.1305**	**12,619.1305**	**1.6565**	**0.0000**	**12,660.5435**

18-06390_West_Grove - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**12.74**	**19.27**	**-5.61**	**0.00**	**10.66**	**37.28**	**11.81**	**18.63**	**32.45**	**19.69**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328
Energy	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
Mobile	2.5290	13.3120	33.3771	0.1271	11.1417	0.1033	11.2449	2.9807	0.0963	3.0771		12,938.2212	12,938.2212	0.6256		12,953.8611
Total	**11.8220**	**18.6104**	**58.8369**	**0.1604**	**11.1417**	**0.6387**	**11.7804**	**2.9807**	**0.6318**	**3.6125**	**0.0000**	**19,400.8750**	**19,400.8750**	**0.7892**	**0.1177**	**19,455.6843**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328
Energy	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
Mobile	2.2901	11.6003	27.4422	0.1008	8.7139	0.0828	8.7967	2.3312	0.0772	2.4085		10,266.8837	10,266.8837	0.5152		10,279.7640
Total	**11.5830**	**16.8987**	**52.9020**	**0.1341**	**8.7139**	**0.6182**	**9.3321**	**2.3312**	**0.6127**	**2.9439**	**0.0000**	**16,729.5375**	**16,729.5375**	**0.6789**	**0.1177**	**16,781.5872**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.02**	**9.20**	**10.09**	**16.38**	**21.79**	**3.21**	**20.78**	**21.79**	**3.02**	**18.51**	**0.00**	**13.77**	**13.77**	**13.99**	**0.00**	**13.74**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/16/2019	12/27/2019	5	10	
2	Grading	Grading	12/28/2019	3/20/2020	5	60	
3	Building Construction	Building Construction	3/23/2020	5/14/2021	5	300	
4	Architectural Coating	Architectural Coating	11/16/2020	6/11/2021	5	150	
5	Paving	Paving	5/17/2021	6/11/2021	5	20	

Acres of Grading (Site Preparation Phase): 9.5

Acres of Grading (Grading Phase): 9.5

Acres of Paving: 0

Residential Indoor: 729,767; Residential Outdoor: 243,256; Non-Residential Indoor: 12,876; Non-Residential Outdoor: 4,292; Striped Parking Area: 6,696 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	6,825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	293.00	65.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	59.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.0737	0.0000	19.0737	10.0395	0.0000	10.0395			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**19.0737**	**2.3904**	**21.4641**	**10.0395**	**2.1991**	**12.2386**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0960	0.0672	0.7326	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		199.2901	199.2901	6.2500e-003		199.4463
Total	**0.0960**	**0.0672**	**0.7326**	**2.0000e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**199.2901**	**199.2901**	**6.2500e-003**		**199.4463**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.5832	0.0000	8.5832	4.5178	0.0000	4.5178			0.0000			0.0000
Off-Road	0.9312	19.0656	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**0.9312**	**19.0656**	**22.9600**	**0.0380**	**8.5832**	**0.9462**	**9.5294**	**4.5178**	**0.9462**	**5.4639**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0960	0.0672	0.7326	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		199.2901	199.2901	6.2500e-003		199.4463
Total	**0.0960**	**0.0672**	**0.7326**	**2.0000e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**199.2901**	**199.2901**	**6.2500e-003**		**199.4463**

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2929	0.0000	6.2929	3.3439	0.0000	3.3439			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.2929**	**1.3974**	**7.6903**	**3.3439**	**1.2856**	**4.6295**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0057	34.3292	7.2719	0.0878	45.6000	0.1290	45.7289	11.2495	0.1234	11.3729		9,516.2486	9,516.2486	0.7221		9,534.3021
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6105	1.6700e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		166.0751	166.0751	5.2100e-003		166.2053
Total	**1.0857**	**34.3852**	**7.8824**	**0.0895**	**45.7676**	**0.1303**	**45.8979**	**11.2939**	**0.1246**	**11.4185**		**9,682.3237**	**9,682.3237**	**0.7274**		**9,700.5074**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8318	0.0000	2.8318	1.5048	0.0000	1.5048			0.0000			0.0000
Off-Road	0.7263	14.8397	18.9906	0.0297		0.7555	0.7555		0.7555	0.7555	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**0.7263**	**14.8397**	**18.9906**	**0.0297**	**2.8318**	**0.7555**	**3.5874**	**1.5048**	**0.7555**	**2.2603**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0057	34.3292	7.2719	0.0878	45.6000	0.1290	45.7289	11.2495	0.1234	11.3729		9,516.2486	9,516.2486	0.7221		9,534.3021
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0800	0.0560	0.6105	1.6700e-003	0.1677	1.3100e-003	0.1690	0.0445	1.2100e-003	0.0457		166.0751	166.0751	5.2100e-003		166.2053
Total	**1.0857**	**34.3852**	**7.8824**	**0.0895**	**45.7676**	**0.1303**	**45.8979**	**11.2939**	**0.1246**	**11.4185**		**9,682.3237**	**9,682.3237**	**0.7274**		**9,700.5074**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2929	0.0000	6.2929	3.3439	0.0000	3.3439			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2929**	**1.2734**	**7.5663**	**3.3439**	**1.1716**	**4.5155**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9289	32.1073	7.0387	0.0868	2.0386	0.1041	2.1427	0.5571	0.0996	0.6567		9,418.6436	9,418.6436	0.7039		9,436.2412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0740	0.0500	0.5544	1.6200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		160.9277	160.9277	4.6300e-003		161.0435
Total	**1.0030**	**32.1572**	**7.5931**	**0.0884**	**2.2063**	**0.1054**	**2.3117**	**0.6016**	**0.1008**	**0.7024**		**9,579.5713**	**9,579.5713**	**0.7085**		**9,597.2847**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8318	0.0000	2.8318	1.5048	0.0000	1.5048			0.0000			0.0000
Off-Road	0.7263	14.8397	18.9906	0.0297		0.7555	0.7555		0.7555	0.7555	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**0.7263**	**14.8397**	**18.9906**	**0.0297**	**2.8318**	**0.7555**	**3.5874**	**1.5048**	**0.7555**	**2.2603**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9289	32.1073	7.0387	0.0868	2.0386	0.1041	2.1427	0.5571	0.0996	0.6567		9,418.6436	9,418.6436	0.7039		9,436.2412
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0740	0.0500	0.5544	1.6200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		160.9277	160.9277	4.6300e-003		161.0435
Total	**1.0030**	**32.1572**	**7.5931**	**0.0884**	**2.2063**	**0.1054**	**2.3117**	**0.6016**	**0.1008**	**0.7024**		**9,579.5713**	**9,579.5713**	**0.7085**		**9,597.2847**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2257	6.8434	1.8452	0.0161	0.4159	0.0344	0.4503	0.1197	0.0329	0.1526		1,724.9531	1,724.9531	0.1213		1,727.9855
Worker	1.4458	0.9759	10.8288	0.0316	3.2751	0.0250	3.3000	0.8686	0.0230	0.8916		3,143.4543	3,143.4543	0.0905		3,145.7163
Total	**1.6714**	**7.8193**	**12.6740**	**0.0477**	**3.6910**	**0.0594**	**3.7504**	**0.9883**	**0.0559**	**1.0442**		**4,868.4073**	**4,868.4073**	**0.2118**		**4,873.7017**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2257	6.8434	1.8452	0.0161	0.4159	0.0344	0.4503	0.1197	0.0329	0.1526		1,724.9531	1,724.9531	0.1213		1,727.9855
Worker	1.4458	0.9759	10.8288	0.0316	3.2751	0.0250	3.3000	0.8686	0.0230	0.8916		3,143.4543	3,143.4543	0.0905		3,145.7163
Total	**1.6714**	**7.8193**	**12.6740**	**0.0477**	**3.6910**	**0.0594**	**3.7504**	**0.9883**	**0.0559**	**1.0442**		**4,868.4073**	**4,868.4073**	**0.2118**		**4,873.7017**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1921	6.2102	1.6802	0.0160	0.4159	0.0131	0.4290	0.1197	0.0125	0.1323		1,711.9296	1,711.9296	0.1163		1,714.8371
Worker	1.3512	0.8784	9.9581	0.0305	3.2751	0.0242	3.2993	0.8686	0.0223	0.8909		3,041.7829	3,041.7829	0.0818		3,043.8281
Total	**1.5434**	**7.0886**	**11.6383**	**0.0465**	**3.6910**	**0.0374**	**3.7283**	**0.9883**	**0.0349**	**1.0232**		**4,753.7125**	**4,753.7125**	**0.1981**		**4,758.6652**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1921	6.2102	1.6802	0.0160	0.4159	0.0131	0.4290	0.1197	0.0125	0.1323		1,711.9296	1,711.9296	0.1163		1,714.8371
Worker	1.3512	0.8784	9.9581	0.0305	3.2751	0.0242	3.2993	0.8686	0.0223	0.8909		3,041.7829	3,041.7829	0.0818		3,043.8281
Total	**1.5434**	**7.0886**	**11.6383**	**0.0465**	**3.6910**	**0.0374**	**3.7283**	**0.9883**	**0.0349**	**1.0232**		**4,753.7125**	**4,753.7125**	**0.1981**		**4,758.6652**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**16.0128**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.5 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2911	0.1965	2.1805	6.3500e-003	0.6595	5.0300e-003	0.6645	0.1749	4.6300e-003	0.1795		632.9823	632.9823	0.0182		633.4377
Total	**0.2911**	**0.1965**	**2.1805**	**6.3500e-003**	**0.6595**	**5.0300e-003**	**0.6645**	**0.1749**	**4.6300e-003**	**0.1795**		**632.9823**	**632.9823**	**0.0182**		**633.4377**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**15.8300**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.5 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2911	0.1965	2.1805	6.3500e-003	0.6595	5.0300e-003	0.6645	0.1749	4.6300e-003	0.1795		632.9823	632.9823	0.0182		633.4377
Total	**0.2911**	**0.1965**	**2.1805**	**6.3500e-003**	**0.6595**	**5.0300e-003**	**0.6645**	**0.1749**	**4.6300e-003**	**0.1795**		**632.9823**	**632.9823**	**0.0182**		**633.4377**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**15.9895**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.5 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2721	0.1769	2.0052	6.1500e-003	0.6595	4.8800e-003	0.6644	0.1749	4.5000e-003	0.1794		612.5092	612.5092	0.0165		612.9210
Total	**0.2721**	**0.1769**	**2.0052**	**6.1500e-003**	**0.6595**	**4.8800e-003**	**0.6644**	**0.1749**	**4.5000e-003**	**0.1794**		**612.5092**	**612.5092**	**0.0165**		**612.9210**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**15.8300**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.5 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2721	0.1769	2.0052	6.1500e-003	0.6595	4.8800e-003	0.6644	0.1749	4.5000e-003	0.1794		612.5092	612.5092	0.0165		612.9210
Total	**0.2721**	**0.1769**	**2.0052**	**6.1500e-003**	**0.6595**	**4.8800e-003**	**0.6644**	**0.1749**	**4.5000e-003**	**0.1794**		**612.5092**	**612.5092**	**0.0165**		**612.9210**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0692**	**0.0450**	**0.5098**	**1.5600e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.7227**	**155.7227**	**4.1900e-003**		**155.8274**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.6093	0.6093		0.6093	0.6093	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5609**	**11.2952**	**17.2957**	**0.0228**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0692**	**0.0450**	**0.5098**	**1.5600e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.7227**	**155.7227**	**4.1900e-003**		**155.8274**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2901	11.6003	27.4422	0.1008	8.7139	0.0828	8.7967	2.3312	0.0772	2.4085		10,266.8837	10,266.8837	0.5152		10,279.7640
Unmitigated	2.5290	13.3120	33.3771	0.1271	11.1417	0.1033	11.2449	2.9807	0.0963	3.0771		12,938.2212	12,938.2212	0.6256		12,953.8611

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,534.08	1,534.08	1534.08	5,242,184	4,099,912
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,534.08	1,534.08	1,534.08	5,242,184	4,099,912

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
City Park	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Enclosed Parking Structure	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Parking Lot	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896
Recreational Swimming Pool	0.552111	0.043066	0.201891	0.118512	0.015605	0.005863	0.021387	0.031253	0.002087	0.001818	0.004803	0.000708	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
NaturalGas Unmitigated	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	11429.9	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1233**	**1.0534**	**0.4482**	**6.7200e-003**		**0.0852**	**0.0852**		**0.0852**	**0.0852**		**1,344.6996**	**1,344.6996**	**0.0258**	**0.0247**	**1,352.6905**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	11.4299	0.1233	1.0534	0.4482	6.7200e-003		0.0852	0.0852		0.0852	0.0852		1,344.6996	1,344.6996	0.0258	0.0247	1,352.6905
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1233**	**1.0534**	**0.4482**	**6.7200e-003**		**0.0852**	**0.0852**		**0.0852**	**0.0852**		**1,344.6996**	**1,344.6996**	**0.0258**	**0.0247**	**1,352.6905**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328
Unmitigated	9.1697	4.2451	25.0116	0.0266		0.4503	0.4503		0.4503	0.4503	0.0000	5,117.9542	5,117.9542	0.1379	0.0931	5,149.1328

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.3501					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4653	3.9762	1.6920	0.0254		0.3215	0.3215		0.3215	0.3215	0.0000	5,076.0000	5,076.0000	0.0973	0.0931	5,106.1641
Landscaping	0.7062	0.2689	23.3196	1.2300e-003		0.1288	0.1288		0.1288	0.1288		41.9542	41.9542	0.0406		42.9687
Total	**9.1697**	**4.2451**	**25.0116**	**0.0266**		**0.4503**	**0.4503**		**0.4503**	**0.4503**	**0.0000**	**5,117.9542**	**5,117.9542**	**0.1379**	**0.0931**	**5,149.1328**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6481					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.3501					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4653	3.9762	1.6920	0.0254		0.3215	0.3215		0.3215	0.3215	0.0000	5,076.0000	5,076.0000	0.0973	0.0931	5,106.1641
Landscaping	0.7062	0.2689	23.3196	1.2300e-003		0.1288	0.1288		0.1288	0.1288		41.9542	41.9542	0.0406		42.9687
Total	**9.1697**	**4.2451**	**25.0116**	**0.0266**		**0.4503**	**0.4503**		**0.4503**	**0.4503**	**0.0000**	**5,117.9542**	**5,117.9542**	**0.1379**	**0.0931**	**5,149.1328**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Greenhouse Gas Emission Worksheet
N20 Mobile Emissions

From CalEEMod Vehicle Fleet Mix Output:

Annual VMT: 4,099,912

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	55.1%	0.04	0.0220556	0.04	0.022056
Light Truck < 3750 lbs	4.3%	0.05	0.00217	0.06	0.002604
Light Truck 3751-5750 lbs	20.1%	0.05	0.0100525	0.06	0.012063
Med Truck 5751-8500 lbs	12.0%	0.12	0.0144326	0.2	0.024054
Lite-Heavy Truck 8501-10,000 lbs	1.6%	0.12	0.0019394	0.2	0.003232
Lite-Heavy Truck 10,001-14,000 lbs	0.6%	0.09	0.0005278	0.125	0.000733
Med-Heavy Truck 14,001-33,000 lbs	2.1%	0.06	0.0012617	0.05	0.001051
Heavy-Heavy Truck 33,001-60,000 lbs	3.1%	0.06	0.0018307	0.05	0.001526
Other Bus	0.2%	0.06	0.0001235	0.05	0.000103
Urban Bus	0.2%	0.06	0.000112	0.05	9.33E-05
Motorcycle	0.5%	0.09	0.0004289	0.01	4.77E-05
School Bus	0.1%	0.06	4.565E-05	0.05	3.8E-05
Motor Home	0.1%	0.09	0.0000846	0.125	0.000118
Total	**100.0%**		**0.0550651**		**0.067719**

Total Emissions (metric tons) =
Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4	21	GWP
N2O	310	GWP
1 ton (short, US) =	0.90718474	metric ton

Annual Mobile Emissions:

	Total Emissions		Total CO2e units	
N20 Emissions:	0.2776	metric tons N2O	**86.07**	metric tons CO2e
		Project Total:	***86.07 metric tons CO2e***	

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.